FY 2004 TRAINING CATALOG AND RESOURCE GUIDE

FEMP Workshops for:

- Federal Facility Energy and Water Managers
- Associated Contracting Personnel

Important Energy/Water Management Conferences

Web-based LOCATOR for Non-FEMP Training

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable.

U.S. Department of Energy
Energy Efficiency and Renewable Energy

MISSION STATEMENT

FEMP increases energy security and reduces the cost and environmental impact of the Federal government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at Federal sites.

U.S. Department of Energy

Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

♻ Printed on recycled paper with soy-based inks.

WELCOME TO FEMP TRAINING FOR FISCAL YEAR 2004!

Since the enactment of the Energy Policy Act of 1992, FEMP has been providing training in facility energy and water management for Federal agencies.

The FY 2004 Training Catalog and Resource Guide describes the 15 FEMP courses and provides workshop schedules and contact information. Classroom workshops are rotated around the country; for those who are not able to travel, there are: the Energy Management Telecourse (and video tapes), which summarizes six FEMP courses via satellite broadcast; the FEMP Lights self-paced Web course; and the Distributed Generation and Combined Heat and Power Web course.

Are you wondering what training you should take first? Go to the "Users Guide to the FEMP Training Program" on page 3, and the sections on the statutory basis for FEMP training and areas of required expertise on pages 42-43. Options to address the possibility of serious natural gas shortages this winter will be included in the Evolving Energy Markets Workshop and the Utility Energy Services Contracting Projects Workshops. The provisions of the "Energy-Efficient Standby Power Devices" Executive Order will be discussed in the Buying Energy Efficient Products Workshop.

Courses are continuously updated for technology and policy developments. Format revisions this year include adding a Web course for the Distributed Generation and Combined Heat and Power course and, for the Operations and Maintenance Management course, adding hands-on learning in the use of measurement and diagnostic equipment.

Most FEMP workshops are free for Federal attendees. Personnel from state and local governments and from the private sector are welcome for most workshops on a space available basis.

Schedule changes may occur throughout the year as additional workshops are added, and occasionally workshops may be cancelled due to low advanced registrations. Please check the following address throughout the year for the most current workshop information:
http://www.eere.energy.gov/femp/resources/training/femptraining.html

Please see the section on FEMP's Web-based Locator system, which provides information on energy and water management training provided by universities, associations, and private sector organizations; the "Other Technical Resources" section directs you to useful software Web sites and other sources of energy management assistance.

You'll also find information on FEMP contacts, publications, and services.

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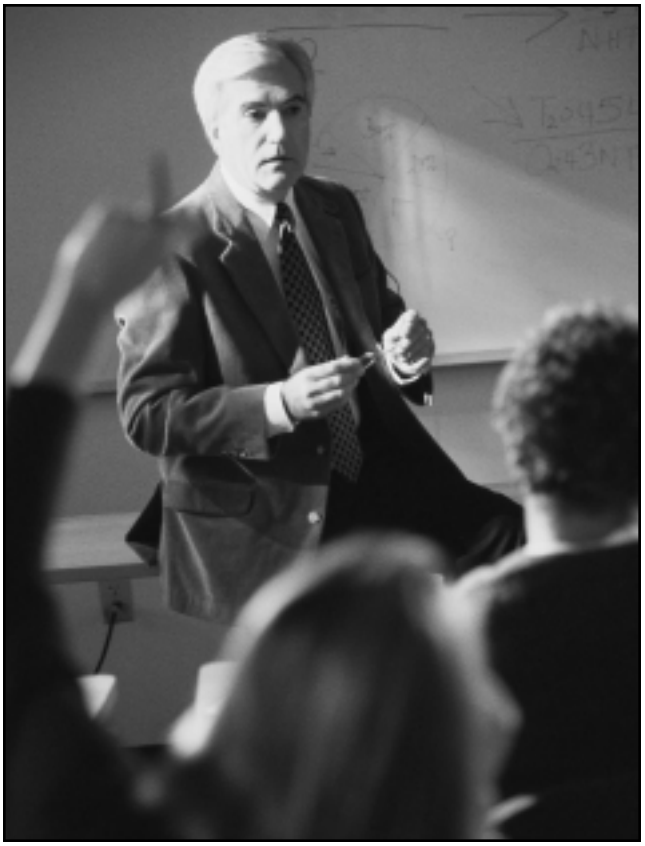
*Executive Order 13123- "Greening the Government through Efficient Energy Management"



RECENT POLICY AND GUIDANCE

Natural Gas Supply/Demand Situation

The price of natural gas has shown unusually high volatility over the past two years. Its current price, well in excess of $6 per thousand cubic feel (MCF), is also unusually high for the month of June. What might the future hold for natural gas price and availability?

The Energy Secretary's May 29th letter to the Washington Post noted that natural gas average monthly prices would likely remain "…above $5 per thousand cubic feet through the remainder of the year with possible spikes above $6 during peak demand periods." The natural gas futures market (NYMEX) extends this time period by forecasting prices above $5 indefinitely into the future. These prices are much greater than the $2-3 averages of the past decade. Furthermore, prices no longer drop a lot during the summer as they did in past years.

Although forecasting is a hazardous art at best, the natural gas supply/demand situation does seem to have tightened appreciably. Gas production in the "lower-48" has remained static since 1994. The United States now relies on imports from Canada (and on much more costly liquefied gas, LNG, from Algeria and Trinidad) to supply the marginal MCF. Since the lower-48 and offshore Gulf of Mexico have been explored intensively for many decades, major new natural gas finds that would appreciably boost domestic production seem unlikely. Federal Reserve Chairman Greenspan recently recommended greater imports of gas, including LNG.

FEMP is responding to this situation with continued leadership in promoting the efficient use of energy resources by Federal agencies, including targeted energy conservation, efficiency and load management activities at Federal facilities. FEMP's "Assessing Load and Energy Reduction Techniques (ALERT) team energy assessments are being offered to facilities as part of a broad strategy to (1) reduce Federal natural gas consumption and (2) reduce summer peak demand in regions that rely heavily on natural gas for electricity generation. ALERT assessments provide opportunities for Federal facilities to significantly reduce their energy use and cut their energy costs.

A bulletin is available titled, "FEMP ALERT to Help Federal Facilities Immediately Reduce Natural Gas Demand and Consumption," which provides criteria for site selection, the ALERT assessment procedure, and contact information. This bulletin may be accessed through:
http://www.eere.energy.gov/femp/techassist/alert.html

Updated information will be provided at FEMP's "Evolving Energy Markets" workshop and "Utility Energy Services Contracting Projects" workshops.

Electricity Supply/Demand Crisis of 2001

During the first half of 2001, concerns over sharply rising power prices and uncertain power availability resulted in the issuance of national policy and guidance, much of it affecting federal facilities. Those new initiatives, referenced below, are addressed throughout FEMP's FY 2004 training curriculum. (FEMP's Operations and Maintenance Management course [page 24] provides lessons learned from the Assessment of Load and Energy Reduction Teams [ALERT]. ALERT was deployed to federal sites to seek solutions to power cost and availability crises.)

On May 3, 2001, President Bush issued a Directive to the heads of executive departments and agencies requiring them to take appropriate actions to conserve energy use at their facilities to the maximum extent consistent with the effective discharge of public responsibilities. Agencies located in regions where electricity shortages were possible were directed to conserve use, especially during periods of peak demand.

On May 4, 2001, the U.S. Department of Energy provided a plan of action for federal agencies to comply with the Presidential Directive. These documents and related information are available at:
www.eere.energy.gov/femp/resources/presidential_direct.html
Please see page 44, for no-cost, low-cost conservation measures excerpted from DOE's Plan of Action.

Executive Order 13221 – Energy-Efficient Standby Power Devices

On July 31, 2001 President Bush signed Executive Order 13221, requiring that Federal agencies reduce standby power, through the purchase of energy-efficient products with low standby power. The text of the new Executive Order is available at:
www.eere.doe.gov/femp/resources/neweo.html

SUMMARY OF EXECUTIVE ORDER 13123 – IMPLEMENTATION AND RELATED TRAINING

Guidelines

Official guidelines for complying with E.O. 13123 have been developed by the Federal Interagency Task Force administered by FEMP. They are available at: www.eere.energy.gov/femp/resources/guidances.html

Requirements of E.O. 13123

On June 3, 1999, former President Clinton signed Executive Order 13123, entitled "Greening the Government Through Efficient Energy Management". The Order states that "agencies shall ensure that all appropriate personnel receive training for implementing E.O. 13123.

(1) DOE, DoD, and GSA shall provide relevant training or training materials for those programs that they make available to all federal agencies relating to the energy management strategies contained in this order" [Sec. 406(d) Training and Education].
The entire text of E.O. 13123 can be found on the FEMP Web site at: www.eere.energy.gov/femp/resources/exec13123.html

Facility management and associated contracting personnel are specifically affected by the following:
The order requires that by 2010, federal agencies achieve:

- 35% greater energy efficiency in buildings relative to 1985 levels; and
- 30% cut in greenhouse gas emissions from building-related energy use relative to 1990.

The order directs agencies to maximize the use of:

- Energy Savings Performance Contracts and Utility Contracts, in which private companies make energy improvements at their own expense on federal facilities and receive a portion of the resulting savings;
- Life-cycle cost analysis in order for agencies to see the long-term savings from energy investments.
- ENERGY STAR® and other energy efficient products, everything from light bulbs to boilers; and
- Renewable energy technologies and sources (solar, wind, geothermal, and biomass).

In pursuit of these goals, consider the following:

(1) All FEMP courses have been updated to address the requirements of E.O. 13123.
(2) Each agency has a headquarters representative to the Federal Interagency Energy Task Force who is responsible for providing guidance to agency implementation teams. Be sure your organization has a pipeline to that guidance.

USERS' GUIDE TO THE FEMP TRAINING PROGRAM

What's FEMP Training? Who's It For?

FEMP's training program is divided into three parts:

(1) *Training courses* teach students how to achieve federal energy-efficiency and water conservation at federal facilities. Most participants are on-site engineers and program managers, but attendance by federal financial and procurement specialists is also important. Most courses allow attendance by representatives from utilities, state and local governments, and private companies. FEMP continuously updates and modifies these courses to improve quality. Currently, Learning Units are available for the "Design Strategies for Low-Energy, Sustainable, Secure Buildings" workshop.
(2) FEMP's *Training Event Locator System* is designed to help you find related training courses and conferences provided by universities, professional associations and private organizations (see page 34). It is now available on the Web at: www.eere.energy.gov/femp/resources/training/locator.html
(3) *FEMP-Sponsored Symposia* at national energy and water management conferences are also available (see page 9).

Is There a Preferred Sequence for Taking FEMP Courses?

Sequencing of FEMP courses depends mostly on whether you are a technical employee or a contracting employee, and of course, your energy or water improvement objectives.

Recommended Steps for Technical Specialists

Step 1: Overview Course

FEMP's FY 2004 "Energy Management Telecourse" provides an overview of life-cycle costing, buying energy-efficient products, operations and maintenance, water resource management, Energy Savings Performance Contracting, and Utility Energy Services Contracting. (Prior to the March 2004 broadcast dates, you may order free videotapes of the 2003 sessions. Please email your order to: deisemann@mcneiltech.com).

Don't forget to consult FEMP's *Training Event Locator*, now on the Web, for non-FEMP training.

Step 2: Energy Efficient Products Information

Buying Energy Efficient Products Course: provides guidance for selecting energy efficient products in support of legislation, executive orders, the Federal Acquisition Regulation, and ENERGY STAR®. This course is also available via satellite broadcast and videotape.

Step 3: Updates on Evolving Energy Markets

Evolving Energy Markets Course: learn how to choose the best energy service and project assistance options in the evolving retail utility industry, as well as opportunities for better managing energy use, and procuring electric and gas utility services and renewable power.

Step 4: Cost-Savings Optimization Training

Life-Cycle Costing Course: all federal energy and water improvements must be analyzed for life-cycle cost effectiveness. Get the greatest energy and water savings by using the new Windows-based Building Life-Cycle Costing (BLCC 5) software.

(continued on next page)

Step 5: O&M Opportunities Training

Operations and Maintenance Management Course: find out how to gain better control of your day-to-day facility management and utility costs and implement specific high payback procedures and energy conservation measures. You will need minimal additional resources to reap large near-term savings from this course.

Step 6: Integrated Design Training

Design Strategies for Low-Energy, Sustainable, Secure Buildings Course: up-front planning on how to effectively integrate passive solar design, energy conservation and renewable energy options into building design.

Step 7: Energy Simulation Tool Training

FEDS 5.0 Workshop: incorporates software for analyzing conservation options in individual or multiple buildings at a single site.

Step 8: Specific Technology Training

FEMP Lights Course: targets a major conservation opportunity for federal facility management.

Implementing Renewable Energy Projects Workshop has optional modules for your objectives: passive and active solar; remote power; and backup through photovoltaic and wind systems.

High Performance, Low Energy Laboratory Design and Laboratories for the 21st Century provide a forum for lab building design and operation that incorporates renewable energy technologies and energy efficiency.

Water Resource Management Course: how to measure and manage your sites' water usage to obtain water, energy, cost, and quality-of-life benefits.

Distributed Generation and Combined Heat and Power Course: will help you understand distributed energy resources (DER) which involves placing energy generating systems near, or at, the point of use, improving electric reliability and power quality for customer. DER complements the existing transmission and distribution system and enables the use of waste heat for productive purposes in combined heat and power applications.

Step 9: Project Financing/Contracting Training

The Energy Savings Performance Contracting Telecourse and Super ESPC Delivery Order Workshop focus on obtaining private sector funding to accomplish energy improvements. FEMP recommends that procurement and technical specialists attend the Super ESPC Workshop as a project team. Legal, management, and other specialists on your team are also welcome.

The Utility Energy Services Contracting (UESC) Projects Workshop explores all the information you need to know about implementing energy conservation projects with utilities. FEMP recommends that procurement and technical specialists attend the UESC Workshop as a project team. Legal, management, and other specialists on your team are also welcome.

Recommended Steps for Contracting Specialists

Step 1: Energy Efficient Products Information

Buying Energy Efficient Products Course: provides guidance for selecting energy efficient products in support of legislation, executive orders, the Federal Acquisition Regulation, and ENERGY STAR®. This course is also available via satellite broadcast and videotape.

Step 2: Updates on Evolving Energy Markets

Evolving Energy Markets Course: learn how to choose the best energy service and project assistance options in the evolving retail utility industry, as well as opportunities for better managing energy use, and procuring electric and gas utility services and renewable power.

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What is the Statutory Basis for FEMP Training?

For detailed information on how FEMP training relates to the Executive Order 13123, the Energy Policy Act of 1992 "Trained Energy Manager", and other requirements for agencies, please refer to the Appendix section of this catalog.

MULTIPLE COURSE SESSIONS

FEMP often holds classroom workshops in conjunction with other workshops or conferences to allow students to stretch their travel dollars. Please refer to the respective course description pages for registration information. (Please see the following pages for a complete listing of all FEMP courses.)

- October 21-23, 2003 in Denver, CO

October 21-22	Laboratories for the 21st Century Conference
October 23	High Performance, Low Energy Laboratory Design Workshop

- November 12-14, 2003 in Atlanta, GA

November 12-14	World Energy Engineering Congress (FEMP Symposia)
November 14	High Performance, Low Energy Laboratory Design Workshop

- April 27-29, 2004 in Norfolk, VA

April 27	Introduction to Facility Energy Decision System (FEDS)
April 28-29	Advanced FEDS

- August 8-11, 2004 in Rochester, NY

August 8-11	Energy 2004
(pre or post Energy 2004)	Distributed Generation and Combined Heat & Power Workshop

CHRONOLOGY OF FEMP FY 2004 TRAINING

Classroom workshops are scheduled upon request for Buying Energy Efficient Products. The following workshops were not yet scheduled at press time: Evolving Energy Markets; Utility Energy Services Contracting; and Implementing Renewable Energy Projects. Please check the FEMP Web site for frequent updates: www.eere.energy.gov/femp

DATE	EVENT	LOCATION
2003		
Fall 2003	FEMP Lights (Self-paced Web course)	Online
September 16	High Performance, Low Energy Laboratory Design Workshop	White House Station, NJ
September 16-17	UESC Projects	Chicago, IL
September 17-18	West Coast Energy Management Congress *(FEMP Symposia)*	San Diego, CA
September 25	Advanced Metering for the Federal Sector (303-384-7749)	Golden, CO
October or November	UESC Projects	Southeastern U.S.
October 20	High Performance, Low Energy Laboratory Design Workshop	Denver, CO
October 21-23	Laboratories for the 21st Century Annual Conference	Denver, CO
November 5-6	Life-Cycle Costing (Combined: Basic & Project Oriented)	Seattle, WA
November 11	High Performance, Low Energy Laboratory Design Workshop	Atlanta, GA
November 12-14	World Energy Engineering Congress (*FEMP Symposia*)	Atlanta, GA
November 18-20	FEMP Mid-West Energy Management Symposia (312-886-8582)	St. Louis, MO
November 19	High Performance, Low Energy Laboratory Design Workshop	San Diego, CA
November 20	High Performance, Low Energy Laboratory Design Workshop	Los Angeles, CA
December TBD	Design Strategies for Low-Energy, Sustainable, Secure Buildings	Irwindale, CA
2004		
January 13-14	Introduction to ESPC Workshop	Miami, FL
February or March	Design Strategies for Low-Energy, Sustainable, Secure Buildings	Arizona
Spring TBD	FEMP Lights (Self-paced Web Course)	Online
Spring TBD	Distributed Generation & Combined Heat & Power Workshop (Web course)	Online
Spring TBD	UESC Projects	Northeastern U.S
March 2	Energy Management Telecourse: Part 1 (*Life-Cycle Costing – Basic; Buying Energy Efficient Products*)	Telecourse
March 9	Energy Management Telecourse: Part 2 (*Operations and Maintenance Management; Water Resource Management)*	Telecourse
March 16	Energy Management Telecourse: Part 3 (*Utility Energy Services Contracting; Energy savings Performance Contracting)*	Telecourse
March 9-11	GLOBALCON	Boston, MA
March 23-24	Advanced ESPC/Financing Workshop	Golden, CO
April 6-7	Water Resource Management	Downey, CA
April 27	Introduction to Facility Energy Decision System (FEDS)	Norfolk, VA
April 28-29	Advanced Facility Energy Decision System (FEDS)	Norfolk, VA
April 28-29	Distributed Energy Resources Hands-On Training	Albuquerque, NM
May TBD	FEMP Lights (Advanced)	Chicago, IL
May 4-5	Introduction to ESPC Workshop	Phoenix, AZ
May 18-19	Operations and Maintenance Management	Boston, MA
June 16-17	Operations and Maintenance Management	Madison, WI
Summer TBD	Distributed Generation & Combined Heat & Power Workshop (Web course)	Online
Summer TBD	UESC Projects	Western U.S
July 13-14	Life-Cycle Costing (Combined: Basic & Project-Oriented)	Boston, MA
July 20-21	Introduction to ESPC Workshop	Washington, D.C.
August TBD	Distributed Generation & Combined Heat & Power Workshop (pre or post Energy 2004)	Rochester, NY
August 8-11	Energy 2004	Rochester, NY
September 15-16	Distributed Energy Resources Hands-On Training	Albuquerque, NM

FEMP FY 2004 DISTANCE LEARNING TRAINING SCHEDULE

(Please refer to next page for classroom workshops.)

Web-Based Courses

- FEMP Lights
  Fall 2003
  Spring 2004

  Contact: Cynthia Austin, 916-962-7001;
  austin@h-m-g.com

  Or register online at:
  www.femplights.com

Telecourses 2004

- March 2: Energy Management Telecourse • Part 1
  Life-Cycle Costing –Basic;
  Buying Energy Efficient Products

- March 9: Energy Management Telecourse • Part 2
  Operations and Maintenance Management;
  Water Resource Management

- March 16: Energy Management Telecourse • Part 3
  Utility Energy Services Contracts;
  Energy Savings Performance Contracting

  Contact: Heather Schoonmaker,
  865-777-9869
  trainingsolutions@tds.net

  Or register online at:
  http://fempcentral.com/workshops/registration.ws

FEMP FY 2004 CLASSROOM TRAINING SCHEDULE

(Please see previous page for distance learning training schedule)

Changes occur throughout the year – please check www.eere.energy.gov/femp for frequent updates.

WORKSHOP	DATE/LOCATION	INFORMATION
Distributed Generation & Combined Heat & Power Workshop	• Pre or post August 8-11 Energy 2004, Rochester, NY	Marion Rawson: 202-479-2748 mrawson@energeticsinc.com
Hands-On Distributed Energy Resources (DER) Training	• April 28-29, 2004 Albuquerque, NM • September 15-16, 2004 , Albuquerque, NM	Connie Brooks: 505-844-4383 cjbrook@sandia.gov
Buying Energy Efficient Products *(Classroom)*	• Date and location to be announced	Alison Thomas: 202-586-2099
FEMP Lights (Advanced)	• May 2004, Chicago, IL	Heschong Mahone Group:916-962-7001 www.femplights.com
Design Strategies for Low-Energy, Sustainable, Secure Buildings	• December 2003, Irwindale, CA	Richard Paradis: 202-628-7400, Ext. 201 RParadis@SBICouncil.org
Implementing Renewable Energy Projects	• Date and location to be announced	Robi Robichaud 303-384-7486 robi_robichaud@nrel.gov
High Performance, Low Energy Laboratory Design	• Oct. 20, 2003 Denver, CO • Nov. 11, 2003 Atlanta, GA • Nov. 19, 2003 San Diego, CA • Nov. 20, 2003 Los Angeles, CA	Labs 21 Conference Registration: 781-674-7374 www.epa.gov/labs21century
Laboratories for the 21st Century Conference	• Oct. 21-23, 2003 Denver, CO	Labs 21 Conference Registration: 781-674-7374 www.epa.gov/labs21century
Operations & Maintenance Management	• May 18-19, 2004 Boston, MA • June 16-17, 2004 Madison, WI	Cecilia Mendoza or Shannan Butler 509-372-4368 www.pnl.gov/femp
Water Resource Management	• April 6-7, 2004 Downey, CA	Cecilia Mendoza or Shannan Butler 509-372-4368 www.pnl.gov/femp
Introduction to Facility Energy Decision System (FEDS)*	• April 27, 2004, Norfolk, VA	Cecilia Mendoza or Shannan Butler 509-372-4368 www.pnl.gov/femp
Advanced Facility Energy Decision System (FEDS)*	• April 28-29, 2004, Norfolk, VA	Cecilia Mendoza or Shannan Butler 509-372-4368 www.pnl.gov/femp
Life-Cycle Costing *(Classroom: Combined Basic & Project-Oriented)*	• November 5-6, 2003 Seattle, WA • July 13-14, 2004 Boston, MA	Cecilia Mendoza or Shannan Butler 509-372-4368 www.pnl.gov/femp
Super ESPC	• January 13-14, 2004 Miami, FL • March 23-24, 2004 Golden, CO • May 4-5, 2004 Phoenix, AZ • July 20-21, 2004 Washington, DC	Danette Delmastro: 202-586-7632 danette.delmastro@ee.doe.gov
UESC Projects	• Dates and locations to be announced	FEMP Workshop Hotline:757-275-1046
Evolving Energy Markets	• Date and location to be announced	FEMP Workshop Hotline:757-275-1046

* A second session of FEDS courses is planned and will be co-sponsored by FEMP and DOE's Rebuild America Program.

FEMP-SPONSORED SYMPOSIA AT NATIONAL CONFERENCES

These events offer excellent opportunities for the federal energy and water management community to meet face-to-face and exchange information. The community includes not only representatives of federal agencies, but also energy managers from state and local governments, private-sector suppliers of equipment and services, and representatives from utilities and non-profit institutions. FEMP draws upon this community to organize and conduct seminars on timely energy and water management topics.

FEMP may have a limited number of free registrations for some of these conferences.
Federal employees are encouraged to call 757-275-1046 to be considered.

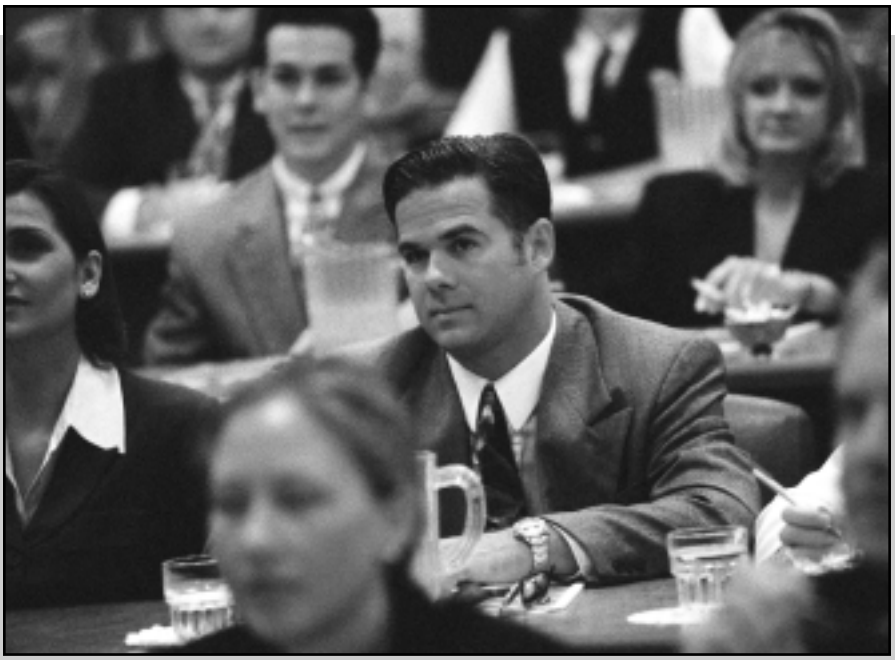
CONFERENCES WITH FEMP SYMPOSIA

DATES	CONFERENCE	LOCATION
OCTOBER 21-23, 2003	Labs 21	Denver, CO
NOVEMBER 12-14, 2003	WEEC 2003	Atlanta, GA
MARCH 9-11, 2004	GLOBALCON 2004	Boston, MA
AUGUST 8-11, 2004	Energy 2004	Rochester, NY
Fall 2004	West Coast EMC	TBD
Fall 2004	WEEC 2004	Atlanta, GA

Definition of conference acronyms:

Labs 21	Laboratories for the 21st Century Conference, jointly sponsored by DOE and EPA
WEEC	World Energy Engineering Congress (sponsored by the Association of Energy Engineers)
GLOBALCON	Global Conservation (sponsored by the Association of Energy Engineers)
Energy 2004	Sponsored by FEMP; co-sponsored by GSA and US Department of Defense
West Coast EMC	West Coast Energy Management Congress (sponsored by the Association of Energy Engineers)

For information and registration, please call 757-275-1046.
Be sure to ask for FEMP registration discounts!



OTHER IMPORTANT CONFERENCES

- NATIONAL ASSOCIATION OF ENERGY SERVICE COMPANIES 20th ANNUAL CONFERENCE
  November 19-20, 2003 – New Orleans, LA
  Information: Phone 202-822-0954, or go to www.naesco.org

- ASHRAE INTERNATIONAL AHR EXPO
  January 26-28, 2004 – Anaheim, CA
  Information: Phone 203-221-9232, or go to www.ahrexpo.com

- NATIONAL FACILITIES MANAGEMENT AND TECHNOLOGY CONFERENCE/EXPOSITION
  March 9-11, 2004 - Baltimore, MD
  Information: go to www.nfmt.com

- AMERICAN SOLAR ENERGY SOCIETY SOLAR 2004
  June 11-14, 2004 – Portland, OR
  Information: go to www.ases.org

- AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (ACEEE) -
  2004 SUMMER STUDY ON ENERGY EFFICIENCY
  TBD
  Information: go to www.aceee.org

SELF-INSTRUCTION – VIDEO AND WEB TRAINING RESOURCES

FEMP Telecourse Web Material

For each of FEMP's March 2004 telecourse modules (listed below), course slides and pre- and post-course information, including links to valuable reference materials on FEMP's Web site, can be found at: www.energyworkshops.org/femp

FY 2004 Energy Management Telecourse

- Part 1: Introduction and EO 13123 Update; Life-Cycle Costing--Basic; Buying Energy Efficient Products
- Part 2: Operations and Maintenance Management; Water Resource Management
- Part 3: Utility Energy Services Contracting; Energy Savings Performance Contracting

FEMP Telecourse Video Cassettes

You may order free videocassettes of the FY 2003 Energy Management Telecourse.

Please email your order to: deisemann@mcneiltech.com, including shipping information.

OTHER TECHNICAL RESOURCES

Industrial Energy Systems Workshops

DOE's Industrial Technologies Program offers training sessions to help energy managers identify opportunities to reduce energy use and operating costs in industrial applications. Courses are offered throughout the year, are 1/2 to 2 days in length, and cover the following subject areas:

- Fan System Performance Assessment
- Motor Systems Management
- Optimization of Process Heating
- Fundamentals of Compressed Air
- Advanced Management of Compressed Air
- Adjustable Speed Drive Application
- Pump System Assessment
- Steam System Assessment

The courses are intended for private sector participants, but are often open for limited numbers of federal participants. Additional information on these courses may be found at: www.oit.doe.gov/bestpractices/training

Group training on industrial applications for federal industrial customers may be available through FEMP's Industrial Facilities Program. For more information on course offerings through FEMP, contact Michaela Martin at martinma@ornl.gov or 865-574-8688.

American National Standards Institute's Management System for Energy 2000 (ANSI/MSE 2000) Workshops

Learn about the nationally adopted American National Standards Institute's Management System for Energy 2000 (ANSI/MSE 2000) standard and how you can use it to build an energy program that will sustain energy savings and continuously identify opportunities. A step forward in the evolution of energy management practice, MSE 2000 will lead to proven results and continuous improvement in energy management practices and energy efficiency. Workshops on ANSI/MSE 2000 are offered by the Economic Development Institute's Energy and Environmental Management Center located at the Georgia Institute of Technology. For additional information on ANSI/MSE 2000 workshops, visit the website at: www.industry.gatech.edu/energy

Software Tools Directory

To find information on over 200 energy-related software tools for buildings that emphasize the use of renewable energy and achieving energy efficiency and sustainability in buildings, go to the Tools Directory of DOE's Building Technologies Program at: www.eere.energy.gov/buildings/energy_tools/

ENERGY STAR® Buildings Program

Access www.energystar.gov to learn about the ENERGY STAR® Benchmarking Tool, how to qualify a building for the ENERGY STAR® label, and ENERGY STAR® labeled federal buildings.

Building Commissioning

FEMP, in cooperation with GSA, has developed the draft *Building Commissioning Guide* (to address the requirements of Executive Order 13123). Access the document at: www.eere.energy.gov/femp/techassist/bldgcomgd.html

For information on training and conferences dealing with building commissioning sponsored by Portland Energy Conservation, Inc. (PECI), please access: www.peci.org

Measurement and Verification Instructional Tool

The Pacific Northwest National Laboratory (PNNL) has developed a CD-based Measurement and Verification (M&V) Instructional Tool for federal employees. The focus of the tool is generic M&V for energy and water projects, including performance contracting, internally-funded projects, and data collection for O&M activities. The first few chapters provide a basic introduction to M&V and are heavily weighted in practical application and introductory topics. The tool is designed so a user can "drill down" into more detailed topics and link to the appropriate M&V protocols on the Internet. This instructional tool is targeted at beginning to intermediate level users and is intended to work in unison with the current M&V protocols and guidelines. Version 1.1 of the tool can be downloaded at http://metering.pnl.gov.

Distributed Energy Resources

For the latest information on FEMP support for Distributed Energy Resource projects and training, please access: www.eere.energy.gov/femp/techassist/der_resources.html

DOE's Distributed Energy & Electrical Reliability Program maintains a Web site to provide access to its DER- related programs at www.eere.energy.gov/deer.html

Please refer to DER course descriptions on pages 19-20.

Naval Air Station North Island constructed a 750-kW photovoltaic array that provides covered parking and over 1 million kWh of energy each year.

Combined Heat and Power

To address the requirements of Executive Order 13123, Section 403(g), FEMP has developed *Combined Heat and Power: A Federal Manager's Reference Guide*. For more information and to download the guide please refer to FEMP's Web page at: www.eere.energy.gov/femp/resources/chpguide.html

Alternative Fuel Vehicle Training

The National Alternative Fuels Training Consortium strives to improve air quality and decrease the dependence on foreign oil by promoting, supporting, and expanding the use of alternative fuel vehicles. They develop and deliver standard, competency-based training for automotive trainers, technicians, and others in the alternative fuel vehicle field, and educate the consumer about alternative fuel vehicles.

This consortium currently operates a network of National Training Centers (NTCs) in 14 states. More than 2,000 technicians have been trained from over 50 industry, academic, and governmental organizations. The US Postal Service, the US Air Force, Clean Cities Programs, and private fleets are users of training materials from the consortium. National Training Centers' contact information and curricula are available at: http://naftp.nrcce.wvu.edu/ntc/ntcintro.html

Cool $ense Workshop

Agencies with an interest in building energy efficiency should consider organizing a workshop to promote integrated chiller retrofits. These retrofits can save money and energy and increase the asset value of your area's buildings. A workshop planning guide has been put together to help you with logistics, programming and marketing strategies. Find this guide along with other information at the Cool $ense Web site: http://ateam.lbl.gov/coolsense/

FEMP Locator for Non-FEMP Training Courses

Those organizations or individuals that are looking to take additional courses not offered through FEMP may use the FEMP Training Event Locator System (LOCATOR), which is a database of energy management training courses offered annually. Find this information on the web at: www.eere.energy.gov/femp/resources/training/locator.html. Please see pages 34-35 for a detailed explanation of the locator system.

SUPER ESPC DELIVERY ORDER WORKSHOP

OPEN ONLY TO GOVERNMENT PERSONNEL

Capsule Description

Learn how to implement your energy conservation project through the streamlined Super Energy Savings Performance Contracting (Super ESPC) process. This procurement process allows energy service companies to assume the capital costs of installing energy and water conservation equipment and renewable energy systems at federal sites. Agencies are shown how to issue delivery orders against regional or technology-specific indefinite delivery/indefinite quantity (IDIQ) contracts.

Columbus Air Force Base used an ESPC to install energy efficient lighting and energy efficient infrared heaters in four aircraft hangers to improve occupant comfort and save energy.

Course Length

1-1/2 days

Fees

None

Course Contents

Two different versions of the Super ESPC course will be offered in FY 2004:

Introduction to ESPC - Intended for an audience who have little or no knowledge of Super ESPCs and may be considering doing a delivery order.

Advanced ESPC/Financing – Intended for a specific audience who want to gain an in-depth understanding of the Super ESPC process, with a special emphasis on the financial aspects, and are currently developing a Super ESPC delivery order. Prerequisite - Introduction to ESPC course.

Plus, there will be a half-day optional Measurement & Verification overview course offered after each Super ESPC course.

Who Should Attend

Energy managers and facility, technical, and procurement personnel. Due to discussion of procurement-sensitive information, *this workshop is open only to government personnel.*

Benefits to You

Allows agencies to partner with a private-sector energy services company in order to take advantage of a solution for saving thousands of dollars in capital costs while reducing long-term energy and water bills. Take advantage of the lessons learned by other federal agencies in implementing and financing energy and water efficiency projects.

Instructors

Regional experts from the U.S. Department of Energy, Golden Field Office, and DOE National Laboratories.

Contact

For more information about the workshop, contact Danette Delmastro at danette.delmastro@ee.doe.gov or 202-586-7632. You can also register online at http://fempcentral.com/workshops/registration.ws. For agency-customized workshops, contact your DOE Regional Office (see listing on page 41).

FY 2004 SCHEDULE

January 13-14, 2004	Introduction to ESPC	Miami. FL
March 23-24, 2004	Advanced ESPC/Financing	Golden, CO
May 4-5, 2004	Introduction to ESPC	Phoenix, AZ
July 20-21, 2004	Introduction to ESPC	Washington, D.C.

The Army implemented an ESPC at the Cleland Sports Complex in Fort Bragg to install high-efficiency lighting, a desiccant dehumidification air handling unit, variable frequency drive pumps, a reflective ceiling system, and an energy management control system, reducing energy use by more than 40 percent each year.

ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC)

(TELECOURSE)

Capsule Description	This telecourse provides you with basic information on Energy Savings Performance Contracting (ESPC), a process that allows private-sector energy service companies to assume the capital costs of installing energy and water conservation equipment and renewable energy systems at federal sites.
Course Length	2 hours at your downlink site.
Fees	Telecourse downlink costs and other site-specific costs are covered by local sponsors, who may pass on their costs to attendees.
Prerequisites	Pre-class study material is available via Web site.
Course Contents	Overview of the process, design and preparation of ESPC solicitations (for agency single-site contracts or agency regional indefinite delivery/indefinite quantity ESPCs); evaluation of proposals; implementation of contracts; case studies; and specific project assistance. As applicable, the workshop is customized to meet the agency's needs in reviewing and examining other alternative financing options such as utility incentive programs and opportunities, and partnerships with local utilities.
Who Should Attend	Headquarters, legal, contracting and technical personnel, and program managers.
Benefits to You	The telecourse helps enable you to meet Energy Policy Act of 1992 (EPACT) goals and provides tools to help you obtain private sector financing for energy, water and renewable energy projects when agency funds are limited.
Instructors	Experts from Oak Ridge National Laboratory.
Contact	For registration information, contact Heather Schoonmaker, 865-777-9869; trainingsolutions@tds.net, or register online at: http://fempcentral.com/workshops/registration.ws To inquire about a customized workshop for your agency or to attend one, contact your DOE Regional Office (see listing on page 41). Contact information is also available by calling the FEMP Workshop Hotline at 757-275-1046.
FY 2004 SCHEDULE	March 16, 2003 Telecourse

UTILITY ENERGY SERVICES CONTRACTING (UESC) PROJECTS WORKSHOP

(CLASSROOM AND TELECOURSE)

Through a UESC with Florida Power & Light, NASA implemented $3.2 million worth of improvements at Kennedy Space Center, including chilled water system redesign, energy-efficient lighting upgrades, and HVAC upgrades. The improvements save 8.5 million kWh and $442,500 annually.

Capsule Description This workshop provides attendees with an overview of the contracting options and services available from their local utility companies to engineer, finance, and install cost-effective energy and water savings projects. Upon completing the workshop, participants have the contracting and technical knowledge to begin a project at their facility.

Course Length 1-1/2 days
(Telecourse: 2 hours at your downlink site)

Fee None. Sponsored by a local utility or agency. (Telecourse downlink costs and other site-specific costs are covered by local sponsors, who may pass on their costs to attendees.)

Prerequisites None. Attendees are strongly encouraged to bring questions about their projects for discussion. (Telecourse: Pre-class study material is made available via Web site.)

Course Contents Participants learn the typical UESC project process, from the audit phase to commissioning the equipment. Sample documents and a step-by-step guide to completing utility contracts for energy conservation projects are provided. As applicable, specific utility programs and services may be discussed, and working sessions with utility representatives may be included.

Who Should Attend Project implementation teams including facility/energy managers, engineering staff, legal staff, and procurement and contracting officials. Priority is given to federal personnel, however, state and local government customers are welcomed on a space-available basis.

Benefits to You Helps your agency meet EPACT goals, conserve energy and get energy conservation projects implemented when agency funds are limited.

Instructors Karen Thomas & Deb Beattie, National Renewable Energy Laboratory
Julia Kelley, Oak Ridge National Laboratory

Contact FEMP Workshop Hotline, 757-275-1046 for classroom workshops.
Register online at: http://fempcentral.com/workshops/registration.ws.

Telecourse registration: contact Heather Schoonmaker, 865-777-9869; trainingsolutions@tds.net

FY 2004 SCHEDULE*			
	March 16, 2004	Telecourse	
	October or November 2003	UESC Projects	Southeastern U.S.
	Spring 2004	UESC Projects	Northeastern U.S.
	Summer 2004	UESC Projects	Western U.S.

* For an updated schedule on classroom courses, please refer to the FEMP Web site: www.eere.energy.gov/femp

EVOLVING ENERGY MARKETS

Capsule Description	This workshop brings together energy experts who explain the fundamentals of how today's utilities operate, and present opportunities for better managing energy use, and procuring electric and gas utility services and renewable power.
Course Length	1 day
Fee	None
Prerequisites	None
Course Contents	Attendees will learn why the utility industry is changing, how utility restructuring is proceeding, and what opportunities this evolving energy market might provide for better energy management practices. Attendees will also hear about GSA's role in energy procurement as well as options for purchasing renewable power.
Who Should Attend	Federal facility and energy managers, federal procurement and contract staff, and state/local government energy managers. Priority will be given to federal personnel.
Benefits to You	Gain a better understanding of how energy markets are evolving. Ask the experts and take advantage of our instructors' experience in evolving energy markets.
Instructors	Mike Warwick, Pacific Northwest National Laboratory; Ken Shutika, General Services Administration; Chandra Shah, National Renewable Energy Laboratory
Contact	FEMP Workshop Hotline, 757-275-1046. Register online at: http://fempcentral.com/workshops/registration.ws.
FY 2004 Schedule*	One Classroom Course is Being Scheduled * Please refer to the FEMP Web site for schedule updates: www.eere.energy.gov/femp

ENERGY MANAGEMENT TELECOURSE

Capsule Description	Live streaming video and digital satellite deliver instructors' lectures followed by live question-and-answer sessions. Problem solving, Web references, quizzes, course evaluations, and certificates of completion are available via the dedicated website. Information is updated annually and is designed to assist facility management personnel in achieving Energy Policy Act of 1992 (EPACT) and E.O. 13123 objectives for energy and water savings, and alternative financing.
Course Length	Instructor presentations are 4 hours per day on 3 dates at your downlink site. The online Self Study Tutorial is available via the Internet and requires approximately 20 – 28 hours to complete.
Fees	Downlink costs and other site-specific costs are covered by local sponsors who may pass on their costs to attendees.
Prerequisites	Self Study Tutorial, available via the dedicated website, www.energyworkshops.org/femp, is completed weekly prior to the live satellite broadcast. Participants print their own note-taking versions of the instructors' slides to follow along during the live broadcast presentation.
Course Contents	Modules include life-cycle costing, energy savings performance contracting, utility energy services contracting, water resource management, and energy conservation opportunities in purchasing, maintenance and design areas.
Who Should Attend	Energy managers responsible for daily operation of facilities (including building managers, demand-side utility managers, government planners, and others) and related contracting and management personnel.
Benefits to You	Completion of these workshops helps agency personnel achieve and maintain energy and cost savings from practical, technologically feasible, and economically sound energy conservation measures.
Instructors	Karen Thomas, National Renewable Energy Laboratory; Linde Fuller, National Institute of Standards and Technology; Donald Mauritz, Lawrence Berkeley National Laboratory; Robert Baugh, Oak Ridge National Laboratory; Kate McMordie-Stoughton and Ray Pugh, Pacific Northwest National Laboratory.
Contact	For more information about the telecourse visit www.energyworkshops.org/femp or contact Heather Schoonmaker, via email, trainingsolutions@tds.net or phone at 865-877-9869. Register online at: http://fempcentral.com/workshops/registration.ws

FY 2004 SCHEDULE

DATE	MODULE
March 2	Part 1: Life-Cycle Costing - Basic; Buying Energy Efficient Products
March 9	Part 2: Operations and Maintenance Management; Water Resource Management
March 16	Part 3: Utility Energy Services Contracting; Energy Savings Performance Contracting

DISTRIBUTED GENERATION AND COMBINED HEAT AND POWER WORKSHOP

(WEB COURSE AND CLASSROOM COURSE)

Twenty-nine Palms Marine Corps Base installed a 7-MW combined heat and power co-generation plant that produces around-the-clock, uninterrupted power supply and saves $5.8 million in annual electricity purchases.

Capsule Description	"Distributed Energy Resources" (DER) involves placing energy generating systems near, or at, the point of use, improving electric reliability and power quality for customer. DER complements the existing transmission and distribution system and enables the use of waste heat for productive purposes in combined heat and power applications.
Course Length	1/2 day Web course; 1 1/2 days classroom course
Fee	No fee for federal agencies
Prerequisites	Read the "DER How to Guide".
Course Contents	Overview of DER, DER technologies and their application, and case studies.
Who Should Attend	Federal facility managers; federal, regional, and state energy management officials; and others interested in DER project development and implementation.
Benefits to You	Learn DER technology, how to implement a DER project, and how to address regulatory barriers.
Presenters	Individuals from private industry, state and local government, DOE Headquarters, and regional experts from DOE, National Renewable Energy Laboratory, and Sandia National Laboratory.
Contact	For information, contact Marion Rawson, Energetics, 202-479-2748, or email mrawson@energeticsinc.com. Register online at: http://fempcentral.com/workshops/registration.ws

FY 2004 SCHEDULE*

Spring, TBD	Online (Web course)
Summer, TBD	Online (Web course)
August, TBD	Rochester, NY (Classroom course)
(Pre or post Energy 2004, August 8-11, 2004)	

* Please refer to the FEMP Web site for schedule updates: www.eere.energy.gov/femp

HANDS-ON DISTRIBUTED ENERGY RESOURCES (DER) TRAINING

Capsule Description	The intent of this course is to familiarize energy managers, decision-makers and technicians with the technologies of distributed energy resources (DER) technologies from cradle to grave. This will be an onsite, hands-on course at Sandia's Distributed Energy Technologies Laboratory (DETL).
Course Length	2 days
Fee	None
Prerequisites	None
Course Contents	Overview of DER, DER technologies and their application, case studies, and hands-on training.
Who Should Attend	Federal Energy Managers and non-federal Facility Managers
Benefits to You	When trainees successfully complete the course, they are able to identify appropriate sites, perform economic analyses, prepare appropriate funding and procurement requests, evaluate competitive bids, manage installations (including site preparation), understand key operational and maintenance issues, and identify end of life and disposal options. Trainees have the opportunity to operate various distributed resources at DETL.
Instructors	Sandia National Laboratory and National Renewable Energy Laboratory.
Contact	For information, contact Connie Brooks, Sandia National Laboratory, 505-844-4383, or email cjbrook@sandia.gov. Register online at: http://fempcentral.com/workshops/registration.ws.
FY 2004 SCHEDULE*	April 28-29, 2004 Albuquerque, NM September 15-16, 2004 Albuquerque, NM * Please refer to the FEMP Web site for schedule updates: www.eere.energy.gov/femp

Watervliet Arsenal installed 10 5-kW proton exchange membrane (PEM) fuel cells at housing, manufacturing, and research facilities on the base, saving $6,000 in annual electricity purchases.

BUYING ENERGY EFFICIENT PRODUCTS

(CLASSROOM AND TELECOURSE)

Capsule Description

Specifics are presented on how to meet the Federal Acquisition Requirement (CFR 48, Part 23) and the Executive Order 13123 directive to purchase ENERGY STAR® products, and products in the top 25th percentile of energy efficiency (for products not covered by ENERGY STAR®). Information is also presented on how to meet Executive Order 13221's directives on purchasing low power standby devices.

Course Length

Telecourse: 2 hours at your downlink site. (1/2 day classroom course may be arranged upon request.)

Fee

There is no cost for the telecourse. Telecourse downlink costs and other site-specific costs are covered by local sponsors who may pass on their costs to attendees.

Prerequisites

Pre-class study materials are available via the Internet.

Course Contents

Federal Acquisition Requirement (CFR 48 Part 23) and Executive Order 13123 directs federal agencies to purchase ENERGY STAR®-labeled products, or products in the top 25th percentile of energy-efficiency as designated by FEMP (for those products not covered by ENERGY STAR®). Learn about FEMP's *Product Energy Efficiency Recommendations*, easy-to-use one-sheet summaries that identify the complying efficiency levels for each product type. The *Recommendations* also provide cost-effectiveness guidance, buyer tips for proper selection and design, and information on how to acquire efficient models through federal supply agencies (GSA and DLA) and other supply sources. FEMP's initiatives and activities on low power standby devices will also be presented.

Who Should Attend

Energy/facility managers and procurement/contract specialists responsible for making purchasing decisions for energy- and water-consuming products.

Benefits to You

Provides guidelines on complying with the Federal Acquisition Requirement and the Executive Orders, along with providing additional resources to assist federal buyers. Helps with selection and procurement of energy efficient products that save energy and money for your facility. Participants receive a copy of the *Product Energy Efficiency Recommendations*, as well as all future updates.

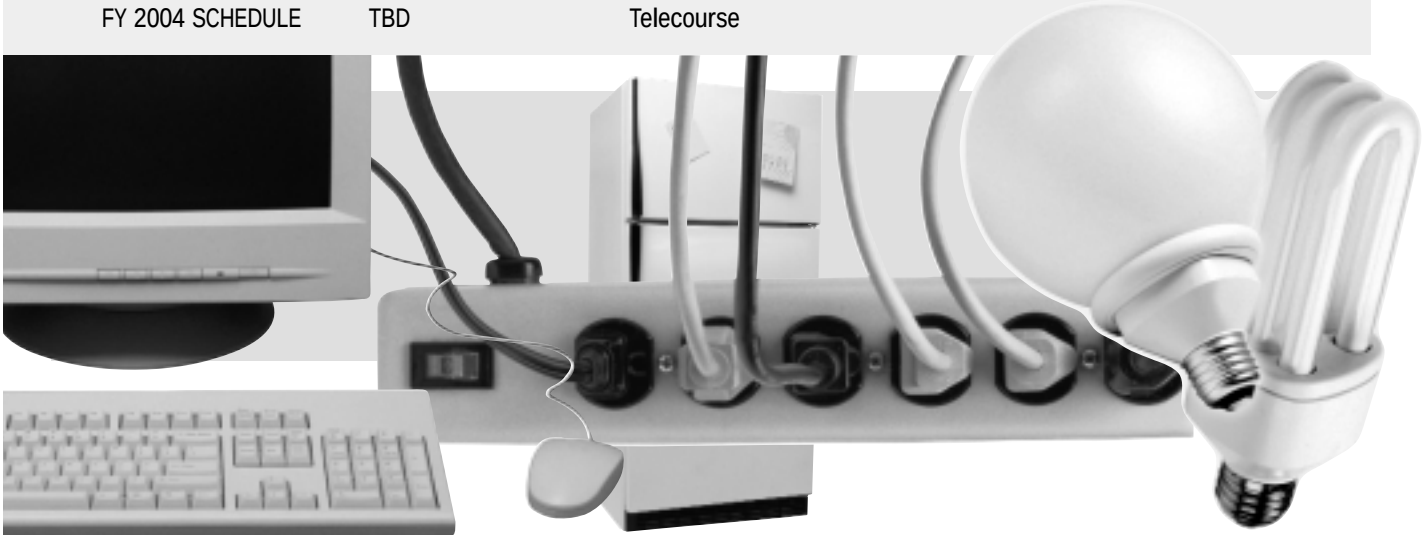
Instructor

Donald Mauritz, Lawrence Berkeley National Laboratory

Contact

Telecourse: to receive more course information, to register, or to sponsor or find a downlink location, please contact Heather Schoonmaker, 865-777-9869; email: trainingsolutions@tds.net, or register online at: www.energyworkshops.org/femp
Please call Alison Thomas, 202-586-2099 to arrange for a classroom course.

FY 2004 SCHEDULE TBD Telecourse



FEMP LIGHTS

(WEB COURSE)

Capsule Description	This comprehensive lighting class is offered over the Internet as a self-paced course. A special Web site provides the class forum, delivering course materials and assignments to the desktop of the student. Photographs, diagrams and animated text provide a lively and highly visual medium to learn about all aspects of energy-effective lighting. The course has been updated to a self-paced format, allowing students to complete materials according to their own schedule.
Course Length	Students are given 15 weeks to finish course materials, which consist of 36 lessons and nine quizzes. Approximately 3-4 hours per week.
Fee	Free, however, the Web-based text, the *Advanced Lighting Guidelines 2001*, must be downloaded by the student from the New Buildings Institute Web site: www.newbuildings.org
Prerequisites	No course prerequisites, but weekly access to the Internet and e-mail is necessary. Confidence with computer technology is advised. (Edmonds Community College offers distance learning courses on introductory computer and Internet use – recommended for any computer novices.)
Course Contents	The course focuses on energy effective lighting for federal buildings. It covers principles of good lighting; new lamps and ballasts; fixtures and controls technologies; energy and life-cycle analysis of lighting projects; selecting contractors; managing a lighting retrofit installation; and using the FEMP Master Specification and other resources. The newly updated *Advanced Lighting Guidelines* is used as the primary text. Students are shown how to use the lighting Web sites, other freely available resources, and exercises based on the students' own lighting experience to deepen their understanding of energy effective lighting.
Who Should Attend	The course is tailored to the needs of federal personnel who are tasked with managing buildings, or lighting retrofit projects, or who want to learn more about the basics of lighting efficiency. Recent students include engineers, architects, project managers, and program managers. Non-federal personnel can take the course on a space-available basis.
Instructors	Lisa Heschong, architect; Jim Benya PE, FIES
Contact	For more information about the course call 916-962-7001. The lead instructor, Lisa Heschong, can be reached at teach@h-m-g.com. Register online at: http://fempcentral.com/workshops/registration.ws.
FY 2004 SCHEDULE	Registration period: Fall 2003, Spring 2004, Fall 2004

FEMP LIGHTS (ADVANCED)

(CLASSROOM COURSE)

Capsule Description	The Advanced Lighting Workshop is designed for students who have mastered the basics of energy effective lighting, and are engaged in application specific challenges. The workshop offers the opportunity to work with an expert illumination engineer on real world lighting problems. Students have the opportunity to try out various analysis tools and techniques. The workshop can be tailored to specific needs.
Course Length	2-1/2 days
Fee	$195, includes course registration. Scholarships are available for government employees.
Prerequisites	FEMP Lights Web Course, or permission of the instructors.
Course Contents	The instructor presents a variety of lighting case studies and the decision process necessary to achieve a successful project, including lighting, energy and economic analysis. Applications that combine high light quality and energy efficiency are stressed. Students are welcome to bring in challenges from their own experience for analysis.
Who Should Attend	The Advanced Lighting Workshop is designed for students who have completed the FEMP Lights Web Course, and are engaged in lighting projects.
Instructor	Nancy Clanton, PE
Contact	Register online at: http://fempcentral.com/workshops/registration.ws. For additional information, please contact the FEMP teachers at 916-962-7001, or teach@h-m-g.com.
FY 2004 SCHEDULE*	May, TBD Chicago, IL

* Please refer to the FEMP Web site for schedule updates: www.eere.energy.gov/femp

The new Social Security Administration Annex Building combines natural daylight with high-efficiency lighting to create a comfortable atmosphere for building occupants while saving energy.

OPERATIONS AND MAINTENANCE MANAGEMENT

(CLASSROOM AND TELECOURSE)

The DahIgren Division of the Naval Surface Warfare Center installed a basewide Direct Digital Control system that not only saves energy, improves HVAC dependability, and reduces maintenance costs, but also serves as an environment for testing Homeland Defense initiatives.

Capsule Description This course provides an overview of Operations and Maintenance (O&M) practices and management programs. The workshop is designed to provide guidance on developing the roles, responsibilities, and functions of key personnel within an O&M organization. Additionally, the workshop focuses on four major O&M practices (Reactive, Preventive, Predictive, and Reliability Centered) and presents information on O&M technologies and savings ideas. New this year: Metering for O&M. A hands-on metering module targeting readily available and easy-to-use metering technologies for O&M and general energy efficiency.

Course Length 2 days (Telecourse: 2 hours at your downlink site.)

Fee None (Telecourse downlink costs and other site-specific costs are covered by local sponsors who may pass on their costs to attendees.)

Prerequisites None (Telecourse: Pre-class study materials are made available via the Internet.)

Course Contents Definition of O&M; benefits of a strong O&M program; costs, risks and liability issues; types of maintenance programs (corrective, preventive, predictive); O&M infrastructure requirements; O&M organization integration; ideas for implementation of O&M; discussion of O&M tools; and a hands-on metering segment.

Who Should Attend Facility management staff; maintenance, engineering operations, training, and administration staff providing O&M services.

Benefits to You Facility and O&M managers learn about proven O&M organizational structures, and are introduced to technologies and tools to optimize energy and dollar savings, reduce operations and fuel costs, lower maintenance and "downtime," and increase safety and reliability.

Instructors Greg Sullivan, Ray Pugh, and Francis Buck, Pacific Northwest National Laboratory

Contact For more information about the classroom course contact Cecilia Mendoza or Shannan Butler at 509-372-4368, or visit the Web site at www.pnl.gov/femp. To receive information about the telecourse access www.energyworkshops.org/femp. Register for the classroom and telecourse online at: http://fempcentral.com/workshops/registration.ws.

FY 2004 SCHEDULE		
	March 9, 2004	Telecourse
	May 18-19, 2004	Boston, MA
	June 16-17	Madison, WI

DESIGN STRATEGIES FOR LOW-ENERGY, SUSTAINABLE, SECURE BUILDINGS

The Bateman Educational and Administrative Center at Chincoteague National Wildlife refuge was constructed using a holistic, sustainable approach that preserved wildlife habitat while incorporating non-toxic building materials, abundant daylight, and numerous energy and water saving features.

Capsule Description

Federal buildings provide a unique design challenge with the need of incorporating security, sustainability, and safety requirements. How buildings use energy plays a critical role in integrating these three complex needs. The course teaches the fundamentals of an integrated "whole building" approach to design that considers the structure and systems as a whole and examines how they work best together to save energy and reduce environmental impact. Participants learn about building durability and security in concert with sustainability, "zero-energy" buildings, green power, renewable energy technologies and distributed generation. The topics apply to new building and retrofits for all Federal building types: office buildings, border stations, residences/barracks, visitor centers, courthouses, warehouses, prisons, etc.

Course Length

Traditional format is 2 days of lecture/discussion with a local site visit. Course can be customized to meet agency needs.

Fee

Free to Federal government employees; $175 for contract architects and engineers. Customized workshops are negotiable.

Prerequisites

None

Course Contents

Topics include daylighting, natural ventilation, passive solar heating, energy-efficient lighting/systems/materials, building integrated photovoltaics, HVAC control strategies, procurement of cost-effective design and consulting services, and project financing options. The curriculum is designed to help participants gain a more thorough understanding of water conservation, low-VOC building materials, indoor environmental quality, and site planning and design issues. Instructors demonstrate some of the latest energy-efficient design software - ENERGY-10 (Version 2.0), review the Internet-based *Whole Building Design Guide*, and discuss the U.S. Green Building Council's LEED Rating System™, as well as the ENERGY STAR® label for buildings.

Who Should Attend

Federal project managers, facility managers, and architects and engineers that work with Federal agencies.

Benefits to You

Learn the latest thinking on these topics and how to design your buildings to comply with Executive Orders 13123 and 13101. Buildings designed with an integrated approach use significantly less conventional energy, make more effective use of renewable energy (such as PV and solar hot water), incorporate recycled and recyclable building materials, and minimize construction waste. Attendees are eligible for 13 AIA CES Learning Units and AEE Certified Energy Manager CEUs.

Instructors

Joe Bourg, Millennium Energy; Robert Koester, Ball State University; Malcolm Lewis, CTG Energetics; and Richard Paradis, SBIC

Contact

Register online at: http://fempcentral.com/workshops/registration.ws.

FY 2004 SCHEDULE*

December 2003	Irwindale, CA
February 2004	Arizona

* Please refer to the FEMP Web site for schedule updates: www.eere.energy.gov/femp

IMPLEMENTING RENEWABLE ENERGY PROJECTS

Capsule Description

Addressing the renewable energy goal of Executive Order 13123, *Greening of the Government*, this is an introductory course covering cost-effective, renewable energy technologies for new and retrofit construction, electricity generation and green power procurement.

Course Length

Traditional format is 2 days of lecture/discussion typically combined with a local site visit. Course can be customized to meet agency needs.

Fee

General workshop is free. Customized workshops are negotiable.

Prerequisites

None

Course Contents

The two-day course focuses on implementing projects at federal facilities using the following technologies: passive solar technologies for heating, cooling and daylighting; solar water heating, solar preheating of ventilated air; photovoltaic and wind systems for remote or grid–tied power; building-integrated photovoltaic power systems; ground-source heat pumps for heating and cooling; design of low energy buildings; biomass for CHP and heating. The course also explains green power procurement, life-cycle costing, how to finance renewable energy systems, and how to utilize the FRESA renewable screening software in initial renewable resource assessment. The course is tailored by region based on renewable energy resources available regionally. The agency-specific course can focus on any or all of these topics.

Who Should Attend

Facility managers; energy coordinators; electrical, mechanical and HVAC engineers; architects, contract architects and engineers; associate project procurement officers.

Benefits to You

As a result of participating in the course, attendees are able to identify potential cost-effective renewable applications for their facilities; evaluate the practical benefits and constraints of different technologies; promote cost-effective projects and green power to their management; and initiate project implementation.

Instructors

National Renewable Energy Laboratory FEMP team members: Nancy Carlisle,AIA; Andy Walker, P.E., Ph.D.; Otto Van Geet, P.E.; Sheila Hayter, P.E.; Trina Masepohl; Sara Farrar-Nagy; Chandra Shah; Robi Robichaud. Instructors from other laboratories will be included as needed.

Contact

For information, please contact:
Robi Robichaud, NREL, 303-384-7553,
robi_robichaud@nrel.gov
Teresa Nealon, NREL, 303-384-7486,
teresa_nealon@nrel.gov
Register online at:
http://fempcentral.com/workshops/registration.ws.

FY 2004 SCHEDULE*

TBD

* Please refer to the FEMP Web site for schedule updates: www.eere.energy.gov/femp

The Army's National Guard Ecobuilding in Phoenix is completely powered by four 400W wind turbines and an 18kW PV array, which save approximately $6,750 per year in electricity costs.

HIGH PERFORMANCE, LOW ENERGY LABORATORY DESIGN WORKSHOP

(PRESENTED BY THE DOE AND EPA LABORATORIES FOR THE21ST CENTURY PROGRAM)

The Food and Drug Administration's Jefferson Laboratories used a UESC to install $10 million in energy and water-saving measures that reduced their energy costs by 39%, saving $848,000 annually.

Capsule Description	This course provides a comprehensive understanding of the opportunities to optimize energy performance in new and existing laboratories. The course is taught by seasoned laboratory designers, energy managers, and facilities professionals.
Course Length	1 day
Fee	$95
Prerequisites	Participants are expected to have a basic knowledge of laboratory design issues.
Course Contents	Course topics include: Introduction to the Architecture and Engineering of High Performance Labs, Air Supply and Distribution Systems, Laboratory Exhaust Systems and Devices, Controls and Commissioning, Lighting Strategies, Green Design and Emerging Rating Systems, Case Studies, and Resources and Tools.
Who Should Attend	Public and private sector laboratory designers, engineers, owners and operators.
Benefits to You	Participants learn some of the leading practices and concepts being developed and implemented by a growing number of laboratory designers, owners, and operators. This assists individuals responsible for implementing Section 203 of E.O. 13123.
Instructors	Dale Sartor, P.E., Geoffrey Bell, P.E., Paul Mathew, Ph.D., Lawrence Berkeley National Laboratory; Otto Van Geet, P.E., Nancy Carlisle, National Renewable Energy Laboratory; Phil Wirdzek, U.S. Environmental Protection Agency; William Lintner, P.E., DOE/FEMP.
Contact	Labs21 Training Registration: www.epa.gov/labs21century/training.

FY 2004 SCHEDULE		
	August 21, 2003*	Lake Buena Vista, FL
	September 16, 2003	Whitehouse Station, NJ
	October 20, 2003**	Denver, CO
	November 11, 2003***	Atlanta, GA
	November 19, 2003	San Diego, CA
	November 20, 2003	Los Angeles, CA

* Held in conjunction with Energy 2003.
** Held in conjunction with the Laboratories for the 21st Century Annual Conference, October 21-23, 2003.
*** Held in conjunction with World Energy Engineering Congress sponsored by the Association of Energy Engineers.

This workshop is being offered to interested federal government agencies on a cost-shared basis. For more information or to schedule a course for your agency, please visit the Labs21 Web site at www.epa.gov/labs21century/training or e-mail labs21@erg.com.

Additional information about the Lab21 program can be found at:
www.epa.gov/labs21century

LABORATORIES FOR THE 21ST CENTURY ANNUAL CONFERENCE

(JOINTLY SPONSORED BY DOE AND EPA)

Capsule Description	A forum to discuss approaches to increase energy efficiency and incorporate renewable energy technologies in laboratory building design and operation.
Course Length	3 days
Fee	$275 (before August 1), $300 (after August 1), plus additional costs for special receptions/events.
Prerequisites	None
Course Contents	The Labs21 Annual Conference provides a forum to discuss topics related to high-performance, low-energy laboratory design, onsite power, renewable energy applications, and new technologies. The conference also updates the laboratory community on the activities of the Labs21 program. For the second year in a row, the conference will feature a technology fair with state-of-the-art technology applications.
Who Should Attend	Public and private sector laboratory designers, engineers, owners and operators. Individuals responsible for implementing Sec. 203 of E.O. 13123.
Benefits to You	After attending the conference, participants are familiar with cost-effective strategies that can be implemented to assist agencies in complying with Sec. 203 in E.O. 13123, which requires federal agencies to reduce energy use in laboratory buildings in 2010 by 25% over a 1990 base case.
Instructors	Conference speakers and participants include laboratory owners, designers, engineers, energy maagers, and facilities professionals from both the public and private sector.
Contact	Labs21 Conference Registration, 781-674-7374
FY 2004 SCHEDULE	October 21-23, 2003* Denver, CO Labs21 2004 Annual Conference (Date and Location TBD)

* Held in conjunction with the High Performance, Low Energy Laboratory Design Course, October 20, 2003, in Denver, CO.

Additional information on the conference can be found on the Laboratories for the 21st Century Web site at www.epa.gov/labs21century/conf/conf2003

For the design of their new Process and Environmental Technology Laboratory, Sandia National Laboratories used energy modeling and lifecycle costing to select a number of advanced energy efficient systems that save more than $200,000 a year.

WATER RESOURCE MANAGEMENT

(CLASSROOM AND TELECOURSE)

Capsule Description	How to assess, evaluate, and incorporate water efficiency into federal project-assessment, planning, and implementation programs.
Course Length	2 days (Telecourse: 2 hours at your downlink site.)
Fee	None (Telecourse downlink costs and other site-specific costs are covered by local sponsors who may pass on their costs to attendees.)
Prerequisites	None (Telecourse: Pre-class study materials are available via the Internet.)
Course Contents	Legislation and legal issues concerning water management in the federal sector; impacts of Executive Order 13123; opportunities for water conservation through elimination of waste, reuse/recycling of water resources and use of efficient technologies such as efficient indoor fixtures, efficient landscape design and irrigation, and cooling tower and steam systems; auditing, leak detection and metering; drought management; and integrated resource planning.
Who Should Attend	Facility resource managers responsible for water management, water conservation, and for adherence to Executive Order 13123.
Benefits to You	The course helps resource professional understand critical issues and have access to important information so that they can incorporate water efficiency into daily operation in addition to assessments, planning and project retrofit programs at federal facilities.
Instructors	Kate McMordie Stoughton, Bill Chvala, and Chip Larson of Pacific Northwest National Laboratory. Local field experts are brought in as guest speakers to address specific conservation technologies.
Contact	For more information about this classroom course contact Cecilia Mendoza or Shannan Butler at 509-372-4368, or visit the Web site at www.pnl.gov/femp. For telecourse information access www.energyworkshops.org/femp. Register for the classroom and telecourse online at: http://fempcentral.com/workshops/registration.ws.

FY 2004 SCHEDULE		
	March 9	TELECOURSE
	April 6-7	Downey, CA

Dyess Air Force Base entered into an ESPC to construct two holding reservoirs, two pump stations, and 3 miles of distribution piping in order to use the nearby city of Abilene's effluent water for irrigation. The project reduces annual potable water consumption by 160 million gallons and saves the base $300,000 annually.

LIFE-CYCLE COSTING

(TELECOURSE)

Capsule Description	Uses state-of-the-art distance teaching to introduce the elements of life-cycle costing (LCC) for energy and water conservation projects according to 10 CFR 436A and Executive Order 13123.
Course Length	2 hours at your downlink site.
Fee	Telecourse downlink costs and other site-specific costs are covered by local sponsors who may pass on their costs to attendees.
Prerequisites	Pre-class study materials are available via the Internet.
Course Contents	Overview of life-cycle costing; LCC example.
Who Should Attend	Facility managers for energy and water, and facility designers
Benefits to You	Ability to understand the basic approach to life-cycle cost analysis, the application of FEMP criteria, and the use of supporting computer software for determining the cost effectiveness of agency-funded and financed energy and water conservation projects.
Instructor	Linde Fuller, Economist, National Institute of Standards and Technology
Contact	For information, contact Heather Schoonmaker, 865-777-9869; trainingsolutions@tds.net. Register online at: http://fempcentral.com/workshops/registration.ws.

FY 2004 SCHEDULE	March 2	Telecourse

LIFE-CYCLE COSTING

(COMBINED: BASIC LCC AND PROJECT-ORIENTED WORKSHOP)

Capsule Description This classroom course addresses the requirements of Executive Order 13123 and the life-cycle costing rules of 10 CFR 436A. It takes participants through the steps of an LCC analysis, explains the underlying theory and integrates it with the FEMP criteria, then focuses on complex issues in LCC analysis and the use of computer software.

Course Length 2 days

Fee None

Prerequisites An elementary understanding of cash flows and present-value analysis. Pre-course instructional materials are available upon request to registrants of the Project-Oriented Workshop who have not attended the Basic Workshop.

Course Contents Identifies alternatives, data requirements and assumptions; discounts future amounts to present values; calculates life-cycle costs, net savings, savings-to-investment ratio, and payback period; evaluates ESPCs. The course also covers computer analysis of system selection, chiller/boiler replacement, fuel selection/switching, optional vs. mandatory retrofits, effects of rate structures on project economics, lease or purchase, water conservation, alternative financing (ESPC and UESC). Classroom instruction, exercises, and computer use.

Who Should Attend Facility managers for energy and water, and facility designers

Benefits to You Ability to determine the cost effectiveness of energy and water conservation projects, using computer-aided life-cycle cost analysis.

Instructors Linde Fuller, Economist, and Amy Rushing, Computer Specialist, National Institute of Standards and Technology;
Gene Meyer, PE, Kansas State University.

Contact For information, contact Cecilia Mendoza or Shannan Butler at 509-372-4520. Register online at: http://fempcentral.com/workshops/registration.ws.

FY 2004 SCHEDULE*	November 5-6, 2003	Seattle, WA
	July 13-14, 2004	Boston, MA

Note: Locally sponsored sessions of the Basic FEMP LCC Workshop are also available from FEMP-qualified instructors. For further information, call the FEMP Help Desk at 1-800-DOE-EREC.

* Please refer to the FEMP Web site for schedule updates: www.eere.energy.gov/femp

INTRODUCTION TO FACILITY ENERGY DECISION SYSTEM (FEDS)

Capsule Description	Learn to use the new *FEDS 5.0* software for Windows. *FEDS 5.0* allows you to quickly and easily survey optimum energy improvements for your buildings or entire site.
Course Length	1 day (We recommend that you stay for the Advanced FEDS class described on page 33.)
Fee	None
Prerequisites	A working knowledge of Windows-based personal computers.
Course Contents	Explore *FEDS 5.0* features and capabilities as a method to quickly and objectively identify energy improvements offering maximum cost-effective savings for your buildings or entire site. Discussions and hands-on exercises are combined to give you an understanding of the software, how to input data, modify parameters, and run *FEDS* to analyze savings opportunities.
Who Should Attend	Federal agency-level and installation-level energy managers who are responsible for adherence to Executive Order 13123 and who need to identify cost-effective, site-specific energy-retrofit projects.
Benefits to You	Learn the basics of *FEDS 5.0* and its capabilities, and identify the information that is required to run the software. Attendees are provided with a workbook and *FEDS 5.0* software.
Instructors	Rosemarie Bartlett, Bob Dahowski, and Chip Larson, Pacific Northwest National Laboratory
Contact	For more information about this classroom course contact Cecilia Mendoza or Shannan Butler at 509-372-4368, or visit the Web site at: www.pnl.gov/femp or register online at: http://fempcentral.com/workshops/registration.ws.

FY 2004 SCHEDULE*	April 27	Norfolk, VA	(Advanced FEDS April 28-29,2004)

*For more information about FEDS visit www.pnl.gov/FEDS

ADVANCED FACILITY ENERGY DECISION SYSTEM (FEDS)

Capsule Description	Survey and analyze optimum energy improvements for your building or entire site, using *FEDS 5.0* software for Windows. At the completion of this course you will have developed a list of potential life-cycle cost effective energy projects. These projects not only comply with Executive Order 13123 directives, but provide enough detail to allow solicitation under a variety of conventional and alternative financing options including: ESPC or Super ESPC financing, or internal/appropriated funding options.
Course Length	2 days
Fee	None
Prerequisites	Introduction to FEDS Workshop or prior familiarity with the FEDS software. Bring sufficient site information to this hands-on course (a list is provided in advance of the course).
Course Contents	Use *FEDS 5.0* to quickly and objectively identify energy improvements for maximum cost-effective savings in accordance with life-cycle-costing methodology; assess and analyze energy efficiency in multiple buildings and at multiple sites without requiring the user to enter detailed engineering parameters; analyze fuel switching opportunities; analyze alternative financing opportunities; and track emissions reductions.
Who Should Attend	Federal agency-level and installation-level energy managers who are responsible for adherence to Executive Order 13123 and who need/want to identify cost-effective, site-specific energy-retrofit projects. Given the nature of this hands-on course, class size is limited, so sign up early.
Benefits to You	Instructors help you: 1) prepare your FEDS case, 2) run FEDS on your case, 3) study FEDS results, and 4) identify potential projects. Participants are provided with the *FEDS 5.0* software and the confidence to use it.
Instructors	Rosemarie Bartlett and Bob Dahowski, Pacific Northwest National Laboratory.
Contact	Cecilia Mendoza or Shannan Butler at 509-372-4368, or register online at: http://fempcentral.com/workshops/registration.ws.
FY 2004 SCHEDULE*	April 28-29 Norfolk, VA (Introduction to FEDS April 27,2004)

* A second three-day workshop is being planned and will be co-sponsored by FEMP and DOE's Rebuild America Program.

For more information about FEDS visit www.pnl.gov/FEDS

FEMP "LOCATOR" FOR NON-FEMP TRAINING COURSES: Finding Other Training Resources through the Training Event Locator System on the Web

The Department of Energy's Federal Energy Management Program manages the FEMP Training Event Locator System (LOCATOR), a database of energy management training courses. There is a link to LOCATOR from the FEMP Web site at www.eere.energy.gov/femp/resources/training/locator.html

LOCATOR helps the energy and water conservation community obtain information about training courses and conferences offered by FEMP and many other public and private organizations. These organizations include Federal, State, and local government departments and agencies, colleges and universities, professional associations, industry groups, and private-sector organizations. LOCATOR provides training course information including:

- Course Category and Course Sub-Categories;
- Course Title;
- Event Dates and Location;
- Organization Contact Information;
- Course Cost;
- Target Audience Information;
- Continuing Education Units (CEUs); and,
- Other information as appropriate.

LOCATOR was updated this year to a more user-friendly format with a redesigned site layout and graphics, and improved search features. Increased search capabilities included revised Subject Categories (key word searching), and a useful index of course sponsor web sites.

Course Categories

The Course Categories are subject-specific key words that are the primary means for searching and retrieving training course information from the database. Course Categories and Sub-Categories are based on the training areas required for "Trained Energy Managers" by the Energy Policy Act of 1992 and the training goals of Executive Order 13123 and more recent Executive Branch directives. The Course Categories and Sub-Categories were updated this year to reflect current issues of significance to the federal energy management community:

1. Alternative Financing for Energy Projects
   - 1.1. Energy Savings Performance Contracting
   - 1.2. Utility Energy Service Contracting

2. Utility Purchasing and Pricing
   - 2.1. Peak Load Management
   - 2.2. Utility Deregulation
   - 2.3. Green Power and Renewable Energy Purchasing

3. Operations and Maintenance
   - 3.1. Energy Auditing
   - 3.2. Building Commissioning

4. Renewables/Distributed Energy Resources (On-Site Generation)
   - 4.1. Solar
   - 4.2. Wind
   - 4.3. Geothermal
   - 4.4. Biomass
   - 4.5. Combined Heat and Power
   - 4.6. Fuel Cells

Course Categories *(continued)*

5. Water Conservation

6. Building Energy Systems
   - 6.1. Building Envelope
   - 6.2. Lighting
   - 6.3. HVAC/Boilers/Chillers
   - 6.4. Electrical Systems/Transformers

7. Energy Efficient Equipment Procurement

8. Building Design and Construction
   - 8.1. Sustainable Design and Construction
   - 8.2. Energy Codes and Standards
   - 8.3. Design Criteria

9. Energy Accounting and Analysis
   - 9.1. Energy Metering
   - 9.2. Energy Audits

10. Life-Cycle Cost Methodology

11. Energy Intensive Facilities and Processes
    - 11.1. Industrial
    - 11.2. Laboratories

12. General Energy Management Topics/Other

The Course Categories, which encompass applicable Sub-Categories, may be searched including all the Sub-Categories (the option), or specific Sub-Categories may be searched individually. When multiple Course Categories are combined into a single search, all applicable Sub-Categories are included. Most other fields of LOCATOR course records are searchable, including the Course Title (text words), Organization Name (drop down list), Event State (drop down list), and Event Date (specified range). All these data elements may be combined to provide search results tailored to the specific requirements of each user. A list of summary search results are displayed each entry in the list may be selected to display detailed course information.

LOCATOR System Operations

LOCATOR features easy-to-use on-screen user prompts and instructions. The navigation bar on the left side of the screen provides a constant location for the LOCATOR menu options. There are two report links for viewing and printing retrieved course information. The "Master Summary Report" provides a quick reference list of course titles and Subject Categories, and the "Detail Report" provides all the course information in LOCATOR for the search results.

After users have identified pertinent courses of interest, they are responsible for contacting the course sponsors directly to obtain detailed course descriptions, register for a specific course, or obtain any additional information which may required. LOCATOR provides active links to course sponsors' e-mail and Web site addresses, where applicable.

Organizations that offer training courses designed to improve the energy-saving capabilities of operations staff, designers, managers, planners, and acquisition personnel at federal facilities may submit information for entry in LOCATOR. The "Add Course" link on the Main Menu provides a convenient screen for entering course information. FEMP retains the right to accept or decline all course submissions, and to edit the record in the LOCATOR database.

If assistance is required with any aspect of LOCATOR, there are "Help" files which users may access. There is also an e-mail link to the LOCATOR Web site administrator.

FEMP PRODUCTS LIST REQUEST FORM

Mail, call, or fax your reply to:

U.S. Department of Energy,
Office of Energy Efficiency and Renewable Energy
Federal Energy Management Program, EE-2L
1000 Independence Avenue, SW
Washington, DC 20585-0121

Call 1-800-DOE-EREC (363-3732) or Fax 703-893-0400;
Outside of the U.S. call: 703-287-8391

Or order online from the FEMP Home Page:
www.eere.energy.gov/femp/ordermaterials.html

ANNUAL REPORTS

- ❑ Federal Energy Management - Year in Review 2002
- ❑ Federal Energy Management - Year in Review 2001
- ❑ 2000 FEMP Accomplishments Report
- ❑ 1999 FEMP Accomplishments Report
- ❑ FY 2001 Annual Report to Congress
- ❑ FY 2000 Annual Report to Congress
- ❑ FY 1999 Annual Report to Congress
- ❑ FY 1998 Annual Report to Congress
- ❑ Greening of the White House – Second Annual Report
- ❑ Greening of DOE Headquarters – Second Year Status Report
- ❑ Greening of the White House – Six Year Report November 1999
- ❑ Greening the Government – A Report to the President on Federal
- ❑ Leadership and Progress (April 22, 2000)

CASE STUDIES

ESPC Case Studies

- ❑ Communication and Collaboration Keep San Francisco VA Medical Center Project on Track
- ❑ Denver Federal Center Saves Energy, Forges Partnerships Through Super ESPC
- ❑ DOE's Pantex Plant Saves More Than $10 Million in Energy Costs
- ❑ DOE's Energy Savings Performance Contracts Stretch Budgets at the Bureau of Indian Affairs
- ❑ First Regional Super ESPC a Success on Kodiak Island
- ❑ Regional Super ESPC Saves Energy and Dollars at NASA Johnson Space Center
- ❑ Super ESPC Takes Off at NASA Glenn Research Center

TECHNICAL ASSISTANCE CASE STUDIES

- ❑ Brighter Days and Nights at the US Soldiers' and Airmen's Home
- ❑ Combined Heat and Power Case Study—Dual Fuel Combustion Turbine Provides Reliable Power to U.S. Navy Submarine Base New London in Groton, Connecticut
- ❑ Combined Heat and Power Case Study—Fuel Cells Provide Reliable Power to U.S. Postal Service Facility in Anchorage, Alaska
- ❑ Counting on Solar Power for Disaster Relief
- ❑ Electrifying Pinnacles
- ❑ Energy-Efficient Retrofits at the Carl Hayden Visitors Center
- ❑ Energy-Efficient Technologies in the Frances Perkins Building
- ❑ The Forrestal Building Relighting Project Saves $400K Annually
- ❑ Fort Irwin Energy Efficiency Improvement Program
- ❑ Greening of the White House
- ❑ Heating with Steam at VA Medical Centers
- ❑ High Temp Hot Water Plant at the Naval Amphibious Base Coronado, San Diego, CA
- ❑ Joshua Tree and Mojave Go Solar
- ❑ New National Conservation Training Center a Model of Energy Efficient Design
- ❑ Procuring Low-Energy Design and Consulting Services
- ❑ Renewable Energy at Channel Island National Park
- ❑ Showering with the Sun at Chickasaw National Recreation Area
- ❑ Solar Success Story at Moanalua Terrace
- ❑ Technologies for Distributed Energy Resources
- ❑ Unique Partnership at Fort Lewis
- ❑ USMC's Twentynine Palms Central Heating Plant Becomes "Most Efficient in the Marine Corps"
- ❑ Water Conservation at the Denver Federal Center

UTILITY SERVICES CASE STUDIES

- ❑ Energy Efficiency Solutions for the Chet Holifield Federal Building
- ❑ Energy Efficiency Upgrades for Fermilab Infrastructure
- ❑ Energy Efficiency Upgrades for Little Rock AFB
- ❑ Fort Knox Strikes Energy-Savings Gold in Partnership with Utility
- ❑ Innovative Utility Partnership at Fort Lewis, WA
- ❑ Partnerships with the U.S. Postal Service
- ❑ Thermal Energy Storage at a Federal Facility
- ❑ Total Solutions Approach at White Sands Missile Range

CD-ROMS

- ❑ FEMP Lead by Example CD
- ❑ A Primer on Electric Utilities, Deregulation and Restructuring of U.S. Electricity Markets CD – Version 2.0

ENERGY EFFICIENCY AWARENESS

- ❑ Act Now to Save - Power Down on Energy (sticker)
- ❑ Creating an Energy Awareness Program – A Handbook for Federal Energy Managers
- ❑ You Have the Power post-it notes (yellow)
- ❑ Earth Day 2003 Magnets
- ❑ Earth Day 2003 Bookmarks
- ❑ Earth Day 2003 Poster - Large
- ❑ Earth Day 2003 Poster - Small
- ❑ Facing the Future, A Directory of Federal Champions
- ❑ Facing the Future, Second Edition 1999-2000
- ❑ Light Switch Covers
- ❑ Promoting Behavior-Based Energy Efficiency in Military Housing
- ❑ YHTP Brochure – FEMP Campaign to Honor, Inspire, Encourage Energy Leadership
- ❑ You Have the Power - Turn It Off (sticker)

* For bulk orders, call 1-800-DOE-EREC (363-3732)

- ❑ ESPC Regulation
- ❑ Federal Measurement & Verification Guidelines: Version 2.2
- ❑ List of Qualified Firms
- ❑ Measurement & Verification Guidelines (Overview)

ENERGY SAVINGS PERFORMANCE CONTRACTING

- ❑ Practical Guide to Savings and Payments in Super ESPC Delivery Orders
- ❑ Project Financing Brochure
- ❑ Request Form for Qualified List Application
- ❑ Super Energy Savings Performance Contracts
- ❑ Super ESPC Toolkit
- ❑ Table of Awarded Contracts

FEDERAL ENERGY AND WATER MANAGEMENT AWARDS

- ❑ Criteria and Guidelines

FEDERAL PROCUREMENT CHALLENGE

- ❑ Buying Energy Efficient Products
- ❑ Selling Energy-Efficient Products to the Federal Government

FEDERAL TECHNOLOGY ALERTS

- ❑ Commercial Heat Pump Water Heaters
- ❑ Domestic Water Conservation Technologies
- ❑ Ground-Source Heat Pumps Applied to Fed. Facilities-2nd Ed.
- ❑ Integrated Systems
- ❑ Liquid Refrigerant Pumping
- ❑ Modulating/Condensing Fuel-Fired Water Heater and Hydronic Boiler
- ❑ Natural Gas Fuel Cells
- ❑ Ozone Cooling Tower Water Treatment
- ❑ Parabolic-Trough Solar Water Heating
- ❑ Photovoltaics
- ❑ Refrigerant Subcooling
- ❑ Residential Heat Pump Water Heaters
- ❑ Solar Water Heating
- ❑ Steam Trap Performance Assessment
- ❑ Thermal Energy Storage for Space Cooling (revised 3/01)
- ❑ Transpired Collectors (Solar Preheaters for Outdoor Ventilation Air)
- ❑ Two-Wheel Desiccant Dehumidification System
- ❑ Ultrasonic Humidifiers
- ❑ Waste Chill Recovery Heat Exchangers for Commercial-Size Automatic Ice Makers

GENERAL PUBLICATIONS

- ❑ Energy Prices and Discount Factors for Life-Cycle Cost Analysis – April 2003
- ❑ Executive Order 13123: Greening the Government Through Efficient Energy Management (December 2000)
- ❑ Federal Government Energy Consumption at a Glance – Feb. 2001
- ❑ Federal Government Energy Consumption at a Glance – 1999
- ❑ FY 2003 Training Catalog
- ❑ Greening Federal Facilities – 2nd Edition
- ❑ NIST Handbook 135 1995

LIGHTING

- ❑ Advanced Lighting Guidelines: 1993
- ❑ Federal Lighting Guide
- ❑ Inductively Coupled Electrodeless Lighting Technology Used in Atrium at the Peachtree Summit Building in Atlanta, GA

NEWSLETTERS – *FEMP FOCUS*

- ❑ Subscription to the *FEMP Focus* Newsletter
- ❑ Latest/Past/Special Issue _____
- ❑ Special Issue - Executive Order 13123 – July 1999
- ❑ Special Issue - Executive Order 12902 – Jan. 1994
- ❑ Special Issue - Energy Policy Act of 1992 – Feb. 1992

PROGRAM OVERVIEWS

- ❑ Biomass and Alternative Methane Fuel Resources
- ❑ Biomass and Alternative Methane Fuels Super ESPC
- ❑ Buying Energy Efficient Products-Program Overview
- ❑ Distributed Energy Resources at Federal Facilities
- ❑ Energy Efficiency and Renewable Energy in National Parks
- ❑ Federal Energy Efficiency through Utility Partnerships
- ❑ Federal Energy Showcases
- ❑ Federal Participation in Million Solar Roofs
- ❑ FEMP CHP Program Overview
- ❑ FEMP's Geothermal Heat Pump Program
- ❑ Industrial Facilities Program – Program Overview
- ❑ FEMP Program Overview
- ❑ FEMP Training Program
- ❑ Fort Lewis Conservation Program
- ❑ Greening Federal Facilities
- ❑ New Technologies Demonstration Program
- ❑ Renewable Energy Overview
- ❑ SAVEnergy Program
- ❑ Super Energy Savings Performance Contracting
- ❑ Water Conservation

TECHNOLOGY FACT SHEETS

- ❑ Assessing the Potential for Renewable Energy on Public Lands
- ❑ Big Savings from the World's Largest Installation of Geothermal Heat Pumps at Fort Polk, LA
- ❑ CHP Potential at Federal Sites
- ❑ Distributed Energy Resources: A How To Guide - Using DER
- ❑ Energy Efficient Torchiere Swap Guide
- ❑ Geothermal Heat Pumps
- ❑ Greening Federal Facilities – 2nd Edition
- ❑ How to Implement an Energy Savings Project (Seven Steps to Savings)
- ❑ Laboratories for the 21st Century: An Introduction to Low-Energy Design
- ❑ Landfill Gas to Energy for Federal Facilities
- ❑ Low-Energy Building Design Guidelines
- ❑ Passive Solar Design
- ❑ Photovoltaics - Systems that Convert Sunlight to Electricity Can Meet Many Different Needs
- ❑ Solar Ventilation Preheating
- ❑ Solar Water Heating

(continued on next page)

OTHER USEFUL INFORMATION

SOFTWARE

- ❑ *BLCC 5.1-03* Software (CD-ROM)
- ❑ *BLCC 4.9-03* Software (diskette)
- ❑ *FEDS* (Federal Energy Decision Screening), Version 5.0 Software and Manual - *Avail. to federal personnel only*
- ❑ *FRESA* (Solar/Renewable Energy), Version 2.5 Software and Manual
- ❑ *WATERGY* (Water Conservation) Software
- ❑ *WATERGY* Manual

Available to download from Web site ONLY:

FLEX (Federal Lighting Energy Expert), Version 3.0 Software

TECHNOLOGY ASSISTANCE

- ❑ Fort Irwin Energy Efficiency Improvement Program
- ❑ High-Temperature Hot Water Plant at the Naval Amphibious Base Coronado, San Diego, California
- ❑ USMC's Twentynine Palms Central Heating Plant Becomes "Most efficient in the Marine Corps"

TECHNOLOGY FOCUSES

- ❑ Duty Cycling Controllers Revisited
- ❑ Energy Efficiency Improvements Through the Use of Combined Heat and Power (CHP) in Buildings
- ❑ Heat Recovery for Wastewater Using a Gravity-Film Heat Exchanger
- ❑ Geothermal Heat Pumps Deliver Big Savings for Federal Facilities
- ❑ New Wind Energy Technology are Cost-Effective in Federal Applications
- ❑ Power Conditioner Also Provides Power Factor Correction
- ❑ Single-Family Residential Building Weatherization

TECHNOLOGY INSTALLATION REVIEWS

- ❑ Assessment of Donlee 3000-Horsepower TurboFireXL Boiler - Technology Installation Review
- ❑ Assessment of High-Performance, Family-Sized Commercial Clothes Washers
- ❑ Assessment of Hybrid Geothermal Heat Pump Systems
- ❑ Demonstration and Evaluation of HVAC Controller for Lodging Facilities
- ❑ Energy Savings from Dual-Source Heat Pump Technology
- ❑ Energy Saving Refrigerated Walk-in Boxes
- ❑ White Cap Roof Spray Cooling System

UTILITY SERVICES

- ❑ A Primer on Electric Utilities, Deregulation and Restructuring of U.S. Electricity Markets CD – Version 2.0
- ❑ Utility Energy Services Contracts: Enabling Documents
- ❑ Utility Energy Services Contracts: Lessons Learned
- ❑ Utility Energy Services Contracting (UESC) video

First Name: _____Last Name: _____

Title: _____

Organization/Agency: _____

Street Address: _____

City: _____State: _____Zip: _____Country: _____

Phone: _____Fax: _____

Email: _____

Fax form to 703-893-0400.

FEMP FOCUS NEWSLETTER

FEMP Focus is a bimonthly newsletter published by FEMP that provides up-to-date information on resources, projects and other information available through FEMP.

To be added to the *FEMP Focus* mailing list,
or to change subscription information, please contact:

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FEMP
FOCUS
U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy
March/April 2003
Dyess Air Force Base 100 Percent Powered by Pollution-Free Wind Power
IN THIS ISSUE
FEMP Focus Interview – see page 16.
John Howard, Federal Environmental Executive, Promotes Sustainable Environmental Stewardship

FEMP "SAVEnergy ACTION PLAN" AUDITS

Ideally, the FEMP training you receive is quickly used in "making projects happen." FEMP can help you get off to a fast start on these projects through its "SAVEnergy Action Plan" audits. For more information, please call the Energy Efficiency and Renewable Energy Clearinghouse, 1-800-DOE-EREC.

You can find general information about the program and how it operates, and download an overview of the Action Plan, the SAVEnergy Audit Request form, and the SAVEnergy Audit Summary form at:
www.eere.energy.gov/femp/techassist/savenergyprog.html

ACCESS TO USEFUL INFORMATION

FEMP Help Desk	Energy Efficiency and Renewable Energy Clearinghouse (EREC) Toll-free phone: 800-DOE-EREC (800-363-3732) Fax: 703-893-0400
FEMP on the Internet	www.eere.energy.gov/femp
Training information	www.eere.energy.gov/femp/resources/training/femptraining.html
FEMP by FAX	202-586-3000
FEMP Mailing Address	Office of Federal Energy Management Programs, EE-2L 1000 Independence Ave., SW Washington, DC 20585-0121

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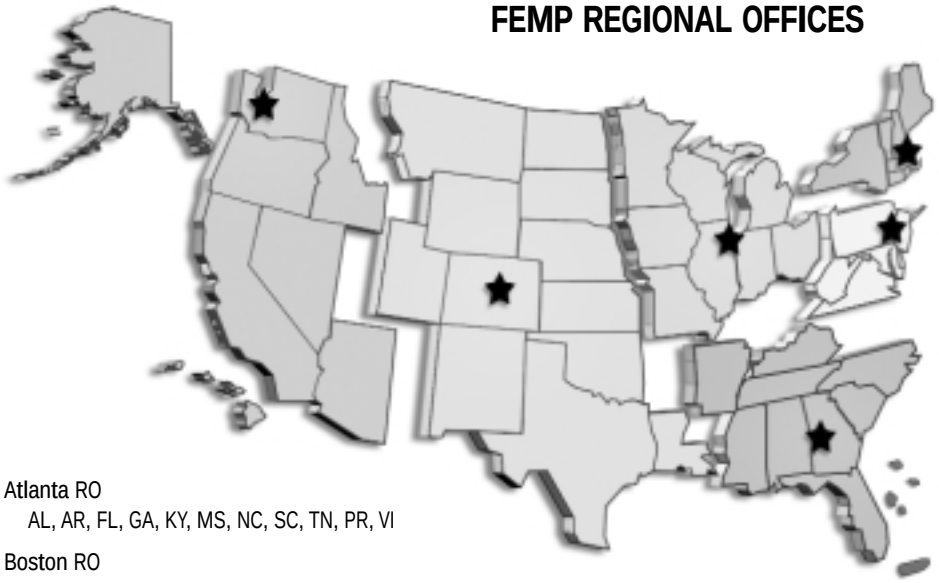

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WHAT IS THE STATUTORY BASIS FOR FEMP TRAINING?

EXECUTIVE ORDER 13123 - Greening the Government Through Efficient Energy Management June 3, 1999

The Order, which amends EPACT (appears below) provides that "agencies shall ensure that all appropriate personnel receive training for implementing this order.

(1) DOE, DOD, and GSA shall provide relevant training or training materials for those programs that they make available to all federal agencies relating to the energy management strategies contained in this order." [Sec. 406(d) Training and Education] (The entire text of E.O. 13123 can be found on the FEMP Web site at: www.eere.energy.gov/femp/resources/exec13123.html)

Facility management and associated contracting personnel are specifically affected by the following:
The order requires federal agencies to achieve by 2010:

- 35% greater energy efficiency in buildings relative to 1985 levels; and
- 30% cut in greenhouse gas emissions from building-related energy use relative to 1990.

The order directs agencies to maximize the use of:

- Energy Savings Performance Contracts and Utility Contracts, in which private companies make energy improvements on federal facilities at their own expense and receive a portion of the resulting savings;
- Life-cycle cost analysis so agencies see the long-term savings from energy investments;
- ENERGY STAR® and other energy efficient products, everything from light bulbs to boilers; and
- Renewable energy technologies and sources (solar, wind, geothermal, and biomass).

EPACT Requirements

The Energy Policy Act of 1992 (EPACT) requires that federal agencies achieve the following important goals, with the assistance of the Department of Energy. FEMP training is one valuable means of helping agencies:

- Achieve BTU energy savings goals;
- Significantly increase the use of solar and other renewable technologies;
- Manage the use of water;
- Encourage the alternative financing of energy and water improvements; and
- Develop "Trained Energy Managers."

Trained Energy Manager Requirements

Section 157 of EPACT requires that each agency establish and maintain a program to ensure that "facility energy managers are trained energy managers." On October 28, 1993, the Interagency Management Task Force's Training Working Group issued the following guidance defining the proficiency to be achieved by "Trained Energy Managers" (TEMs). The working group advised agencies to manage their own qualifying programs and FEMP to provide supportive training. Currently, Learning Units are available for the "Design Strategies for Low-Energy, Sustainable, Secure Buildings" workshop.

Trained Energy Manager

In all areas listed below, a TEM must have demonstrated proficiency or completed a course of study in the following:

- Fundamentals of building energy systems;
- Building energy codes and applicable professional standards;
- Energy accounting and analysis;
- Life-cycle cost methodology;
- Instrumentation for energy surveys and audits.

Demonstrated Proficiency

Proficiency is demonstrated through on-the-job performance in current or previous positions. An acceptable substitute for demonstrated proficiency on the job is certification as an energy manager by an appropriate professional organization or public education institute.

Completed Course of Study

The course of study must have been through either a private or public educational institution, a government agency program, or a professional association training program.

AREAS OF REQUIRED EXPERTISE AND RECOMMENDED FEMP COURSES

Note: Course Number Key is at the end of this section.

(1) Fundamentals of Building Energy Systems

Proficiency or training in the design and operation of heating, ventilation and air conditioning systems for buildings, as well as the implications of renewable energy, power and lighting systems and thermal envelope design on building energy systems. Some specific subjects in this field include: mechanical systems utilization; electrical system utilization; utility and process systems; building envelope; cogeneration; energy management systems; and controls. (FEMP Course Numbers 1, 4, 6, 7, 13, and 14)

(2) Building Energy Codes and Applicable Professional Standards

Proficiency or training in the use and applicability of such codes and standards as the American Society of Heating, Refrigeration and Air Conditioning Engineers, the Illuminating Engineering Society, the National Electrical Code, and the Code of Federal Regulations (10 CFR parts 400 through 499) as it relates to federal energy management.
(FEMP Course Numbers 4 and 6)

(3) Energy Accounting and Analysis

Proficiency or training in establishing an energy accounting system which provides for the methodical examination and review of energy sources, uses and costs for the purposes of recording and reporting such information, or to identify and correct existing problems or potential problems. (FEMP Course Numbers 3 and 11. Your agency may have training on this item. Also, please use FEMP's Training Event Locator System, described on page 34.)

(4) Life-Cycle Cost Methodologies

Proficiency or training in those methods identified in 10 CFR part 436, or those engineering economics courses taught by educational institutions which include discussions of the time value of money, discount and escalation rates, rate of return, savings-to-investment ratio, and knowledge of the federal requirements in 10 CFR part 436. (FEMP Course Number 2) The new E.O. 13123 calls for the use of LCC for purchasing new equipment, new building design and planning projects.

(5) Fuel Supply and Pricing

Proficiency or training in utility rate structures and encompassing: time-of-day, demand and use charges; knowledge of non-utility fuel pricing, including seasonal pricing and storage cost; knowledge of government procurement procedures for both utility and non-utility fuels; and knowledge of relative costs of various alternative fuel types. A level of proficiency and experience within the energy managers' immediate organization is acceptable. (FEMP Course Numbers 1, 11, and 12. Also check training within your agency and FEMP's Training Event Locator System.)

(6) Instrumentation for Energy Surveys and Audits

Proficiency or training in the uses of a range of hand-held and fixed instruments for the measurement of temperature, humidity, quantity of electric or steam power, fuel flow, combustion products in exhaust gases, lighting levels, and air infiltration. (Please check training within your agency and FEMP's Training Event Locator System. For "SAVEnergy Action Plan" Audit information please call Karen Thomas at 202-646-5223.)

Renewables and Sustainable Design

E.O. 13123 directs agencies to maximize their use. (FEMP Course Numbers 4 and 7)

Water Conservation

EPACT does not require that TEMs be proficient in water conservation techniques and technology. However, EPACT does require that agencies implement water conservation projects with a pay-back of 10 years or less. Since TEMs are likely to be involved in such projects, they should be encouraged to obtain training and/or proficiency in water conservation. (FEMP Course Number 9)

(continued on next page)

Project Financing/Utility Incentives

EPACT requires that agencies encourage the use of alternative project financing, including utility incentives, in reaching mandated energy savings goals. (FEMP Course Numbers 8, 11, and 12)

Energy Efficient Products

You will learn how to select and procure the most energy efficient products in FEMP's "Buying Energy Efficient Products" course, number 10.

Distributed Generation and Combined Heat and Power Workshop (DER)

Provides project-focused information on DER technologies and approaches. (FEMP Course Number 14)

Note: FEMP's energy analysis software tools will expedite and optimize your EPACT goal achievement. (FEMP Course Numbers 2 and 5)

KEY FOR FEMP COURSES

Course # 1	Energy Management Telecourse
Course # 2	Life-Cycle Costing (Basic and Project-Oriented)
Course # 3	Operations and Maintenance Management
Course # 4	Design Strategies for Low-Energy, Sustainable, Secure Buildings
Course # 5	FEDS (Introduction and Advanced)
Course # 6	FEMP Lights (Web and Advanced)
Course # 7	Implementing Renewable Energy Projects
Course # 8	Super ESPC and Energy Savings Performance Contracting
Course # 9	Water Resource Management
Course # 10	Buying Energy Efficient Products
Course # 11	Utility Energy Services Contracting (UESC)
Course # 12	Evolving Energy Markets
Course # 13	High Performance Low Energy Laboratory Design and Laboratories for the 21st Century
Course # 14	Distributed Generation & Combined Heat & Power and Hands-On Distributed Energy Resources Training

NO-COST, LOW-COST CONSERVATION MEASURES

On May 4, 2001 the U.S. Department of Energy issued a "Plan of Action: Energy Conservation at Federal Facilities": www.eere.energy.gov/femp/resources/dir_plan.html
Included were the following no-cost, low-cost energy conservation measures:

GENERAL

1. Establish/enhance communications with the local utility company. Understand their needs for load reductions. Work with the local utility to develop the individual facility plan. An example is the Potomac Electric Power Company's (PEPCO's) Curtailable Load Program. During the summer of 1999, participating federal agencies in the Washington, DC, area provided an estimated 8 megawatts of peak load reduction on five occasions when requested by PEPCO, assisting PEPCO, and enhancing grid reliability.

2. Identify load reduction measures appropriate for the facility. Investigate separating loads into: 1) life, health, and safety driven; 2) mission critical; and 3) non-critical. If not separately switchable, investigate modifying systems to allow terminating or reducing non-critical loads.

3. Agencies should immediately update their facility's "Plan of Action for Emergency Electricity Reductions".

4. During alerts, federal facilities should take steps to rapidly reduce their electricity loads, even if these actions would require some sacrifices in employee comfort or convenience. These actions should include: raising indoor temperatures to 78 degrees; shutting down non-essential space cooling up to one hour before the normal close of each workday; turning off non-essential building systems and lighting such as escalators; a portion of all elevators, chilled water (for fountains); and reducing corridor lighting. DOE facility managers are required to take these steps.

5. Establish a system to alert employees of expected high demand days including, but not limited to e-mail, voice mail, or public address announcement to all employees. Communicate early to allow employees to take load reduction measures at home and to dress appropriately.

6. Monitor total facility demand and demands for individual major loads (if separate metering is available). Monitor weather forecasts to predict high demand days and be proactive in communicating with the local utility to assess needs to reduce load.

7. Initiate load reduction measures. Employees can take steps to reduce lighting, personal computers and appliances electricity uses. While energy efficiency should be encouraged on a daily basis, stress the need for increased diligence to alleviate the emergency. Air conditioning operating changes and other system-wide measures should be accomplished by facilities management. Federal facilities that have energy management and control systems are well suited for this task. Facilities should also consider additional measures appropriate for site specific circumstances.

8. Encourage employees to reduce electrical loads in their homes to reduce demand on the utility system. If no one is at home during the workday, unneeded appliances and lights should be turned off, and air conditioning thermostats should be set higher before departing for the day. Also, some utilities offer cost incentives to residential customers who allow the utility to remotely cycle off power to air conditioning and electric water heating systems. Periods without power are limited, so that comfort is not sacrificed. Encourage employees to participate in these programs, to assist the local utility, while reducing their electricity bill.

9. Enhance employee awareness of energy efficiency through training and less formal methods. Provide mandatory and voluntary training opportunities on smart energy practices so that employees can practice energy efficiency during emergency periods and year-round. In addition to training, run public service announcements about energy efficiency on televisions in cafeterias and other public use areas; send periodic e-mail messages about turning off lights and computers and implementing other efficiency practices; post signs or billboards near light switches or communal printers; and consider holding annual energy fairs prior to seasonal emergency periods to provide additional information for employees about how to manage energy use in the work place and in their homes.

LIGHTING MEASURES

1. Turn off fluorescent lights when leaving an area for more than 1 minute. (During non-emergencies, 5 minutes is recommended, to keep from excessively reducing lamp life). Turn off incandescent lights when leaving areas for any period of time.
2. In areas with sufficient daylighting, turn off lights. Adjust blinds, if available, to reduce glare.
3. Use task lighting and turn off general lighting, where it is feasible to maintain sufficient lighting levels for safety and productivity.
4. Turn off display and decorative lighting.

PERSONAL COMPUTERS AND APPLIANCE MEASURES

1. Turn off printers when not in use.
2. Turn off monitors when not in use.
3. Ensure ENERGY STAR® power down features are activated.
4. If computers do not have ENERGY STAR® features available, turn them off when leaving the office for more than 30 minutes.
5. Ensure personal appliances, such as coffee pots and radios are turned off.

AIR CONDITIONING MEASURES

1. Precool building(s) below normal temperature settings prior to onset of peak demand period. Make sure to tell employees about this practice, so that they will not operate space heaters. During peak demand period, allow space temperatures to drift back up to normal settings (or as much as 5 degrees Fahrenheit above normal settings).
2. Allow casual attire, to make higher temperatures more acceptable.
3. Where systems allow, lower chilled water temperatures several degrees below normal settings prior to peak periods, and allow to drift above normal settings during peak periods.
4. Duty cycle air handling units off. Ensure adequate outside air flow rates to maintain indoor air quality.
5. Ensure that ventilation grilles and fan coil units are not blocked by books, flowers, debris, or other obstructions. Check HVAC systems filters and replace if pressure drop across surface exceeds, or is approaching, recommended maximum. This will improve air conditioning system efficiency and improve comfort.

(continued on next page)

OTHER

1. Operate emergency generators (many agencies have negotiated financial incentives from their local utility for operating generators). Ensure that generators have ample fuel for emergency operation and have been tested routinely. Turn off shore power to ships in dock and operate ship power systems. Make mobile utility system electrical generating equipment available to the local utility.
2. Shut off selected elevators and escalators. Ensure accessibility needs are met.
3. Where feasible, schedule high electrical energy use processes during off peak periods.
4. Encourage employees to not use copiers during peak demand period. Turn off selected copiers. Ensure power saver switch on copiers in enabled.
5. Turn off unnecessary loads such as fountain pumps.

LONG TERM SOLUTIONS

1. Consider purchasing interruptible power for selected loads with high electrical demand, and which will not suffer adverse consequences in the event of the utility turning off power. The cost savings from the lower rate may far outweigh the inconvenience of power being turned off within the interruption limitations agreed to in the utility contract.
2. Consider installing sub-metering to identify high intensity loads to be shed during emergencies.
3. Investigate thermal storage systems or alternative energy sources for air conditioning.
4. Install motion sensors and separate lighting circuits to allow turning off unneeded lights. (Some agencies have installed switching to separate public areas from agency work spaces).
5. Install an energy management and control system to allow shedding and monitoring loads from one central location. If non-critical loads are not separately switchable, modify systems to allow terminating. Local utilities or energy services companies can assist with this effort.
6. Consider adding on-site generation using micro-turbines, fuel cells, combined heat and power, renewable, or other appropriate technology.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. By investing in technology breakthroughs today, our nation can look forward to a more resilient economy and secure future.

Far-reaching technology changes will be essential to America's energy future. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a portfolio of energy technologies that will:

- Conserve energy in the residential, commercial, industrial, government, and transportation sectors
- Increase and diversify energy supply, with a focus on renewable domestic sources
- Upgrade our national energy infrastructure
- Facilitate the emergence of hydrogen technologies as vital new "energy carriers."

THE OPPORTUNITIES

Biomass Program
Using domestic, plant-derived resources to meet our fuel, power, and chemical needs

Building Technologies Program
Homes, schools, and businesses that use less energy, cost less to operate, and ultimately, generate as much power as they use

Distributed Energy & Electric Reliability Program
A more reliable energy infrastructure and reduced need for new power plants

Federal Energy Management Program
Leading by example, saving energy and taxpayer dollars in federal facilities

FreedomCAR & Vehicle Technologies Program
Less dependence on foreign oil, and eventual transition to an emissions-free, petroleum-free vehicle

Geothermal Technologies Program
Tapping the Earth's energy to meet our heat and power needs

Hydrogen, Fuel Cells & Infrastructure Technologies Program
Paving the way toward a hydrogen economy and net-zero carbon energy future

Industrial Technologies Program
Boosting the productivity and competitiveness of U.S. industry through improvements in energy and environmental performance

Solar Energy Technology Program
Utilizing the sun's natural energy to generate electricity and provide water and space heating

Weatherization & Intergovernmental Program
Accelerating the use of today's best energy-efficient and renewable technologies in homes, communities, and businesses

Wind & Hydropower Technologies Program
Harnessing America's abundant natural resources for clean power generation

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